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EXECUTIVE SUMMARY

TRADE AND COMMERCIAL CHALLENGE FACING THE BRITISH COLUMBIA SOFTWOOD PLYWOOD INDUSTRY

REPORT PREPARED BY
MINISTRY OF ECONOMIC DEVELOPMENT

APRIL 1977

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SUMMARY

Overview

- The future viability of major portions of the British Columbia softwood plywood industry is in serious jeopardy. The industry has recently lost over one-fifth of its Canadian domestic market and over one-half of traditional foreign export markets to United States plywood producers. These market losses have precipitated sizable British Columbia production and employment dislocations, and additional future displacements appear imminent without substantial improvements in the Provincial industry's international competitive performance.

- The British Columbia industry's competitive problems are deep seated; reflecting an inappropriate output mix in the face of emerging market demand trends, actual and relatively expanding cost disadvantages vis-a-vis United States manufacturers in all major components of the industry's production function, and pronounced United States supply capabilities which are permitting substantial long term softwood plywood export development efforts.

- Significantly, the competitive pressures on the British Columbia industry may intensify in the near to intermediate time frame as a direct result of international tariff reductions currently being negotiated at the Tokyo Round of the General Agreement on Tariffs and Trade (GATT). The current protection (15 percent ad valorem) afforded the industry in the Canadian domestic market (which represents over 80 percent of the total demand for British Columbia plywood) may be more than halved, substantially increasing the vulnerability of provincial producers to import injury.

- The combined effects of a tariff cut with continuation of recent adverse comparative production cost and output price trends are projected to force a substantial liquidation of British Columbia coastal region sheathing plywood operations and a drastic reduction in sanded output by 1985. As a result, the total industry's future production potential could be reduced by more than 1.5 billion square feet (3/8" basis), precipitating the loss of almost 8,000 direct plus indirect British Columbia job opportunities.

- The Government of British Columbia is viewed as having the potential to determine whether or not softwood plywood

products will be exposed to the general GATT tariff reductions. The Government's policy decision is, however, subject to the broader considerations of the British Columbia industry's competitive problems. The current pronounced comparative disadvantage of coastal region manufacturers implies that, in the absence of coordinated industry-labour-government commercial policy efforts to improve competitive performance, tariff maintenance will do little more than delay an inevitable economic adjustment problem. Support for tariff retention could also entail adverse implications for other nonrelated segments of the provincial economy, and significantly compromise the Government's general GATT policy stance.

- Based on the analysis contained in this paper, the Ministry of Economic Development recommends that the Government of British Columbia formally support the concept of temporarily retaining Canadian trade and tariff protection for the softwood plywood industry, subject to the following conditions:

  1. Appropriate segments of the industry, organized labour and the Federal Government enter bilateral discussions with the Government of British Columbia, designed to determine the feasibility of a commercial policy program to improve the industry's competitive performance.

  2. If the bilateral discussions indicate a potential for competitive improvements, the industry, organized labour and the Federal and Provincial Governments will jointly establish a formal task force for softwood plywood industry development.

  3. The task force will formulate, implement and monitor commercial policy initiatives to facilitate:

     a. A reorientation of existing coastal industry production patterns towards the output of a competitive, lower quality, lower priced product mix;

     b. Moderation of wage escalations sufficient to narrow substantially the industry's current direct labour cost disadvantage vis-a-vis producers in the douglas fir region;

     c. Rationalization of existing coastal region production facilities including the closing of obsolete mills, new investment and capital equipment modernization, as well as possible mergers, acquisitions

and interindustry market allocation arrangements designed to enable product specialization and the exploitation of potential economies of scale.

Section Summaries

- The analysis of the entire paper is separated into five major sections. Section I examines structural characteristics of the softwood plywood industry, in both the United States and British Columbia, and details the importance of the British Columbia industry to the province's overall economic performance and future development objectives. Section II reviews the industry's recent competitive problems isolating key causal factors. Section III outlines the related future competitive and GATT adjustment challenge, detailing potential policy options open to the Provincial Government. Section IV forecasts industry production and employment prospects for the 1977-85 period under a varying set of economic scenarios and trade and commercial policy alternatives related to each policy option. Section V presents detailed policy recommendations.

STRUCTURE AND ECONOMIC IMPORTANCE OF THE BRITISH COLUMBIA SOFTWOOD PLYWOOD INDUSTRY

Basic Industry Structure and Competitive Situation

- Softwood plywood production should be viewed within the context of two industrial segments, each operating in a somewhat different competitive environment.

- British Columbia production is geographically separable into the coastal (economic development regions 05 and 06) and interior (economic development regions 02, 03 and 07) regions.

- British Columbia coastal region mills: produce full range of products oriented toward premium grades; most mills established prior to 1955, dated equipment and production techniques; coastal timber resources (predominantly douglas fir) supports high quality output mix, but average log diameters have tended to shrink over time, creating production inefficiencies.

- British Columbia interior region mills: developed since 1965 employing technological innovations permitting plywood

manufacturing from smaller diameter, lower quality peeler logs (primarily spruce and pine species); production limited to sheathing products, narrower range of grades; mills are highly mechanized with modern equipment and production techniques.

- Canadian plywood manufacturing is primarily a British Columbia activity - 90 percent of output originates in the province. The major competition is from the U.S. which maintains an industry 8 times the size of British Columbia's. Similar regional distinctions applicable to United States; rough comparabilities between British Columbia coast/U.S. douglas fir region (Washington, Oregon, California), and British Columbia interior/U.S. southern pine region (southern States). However, U.S. production in both regions includes a variety of lower quality plywoods of a type not produced in Canada, and size of U.S. market has permitted greater product specialization and exploitation of economies of scale.

- Market preference, production cost trends, and tariffs (see Section II) have afforded British Columbia interior region producers comparative advantage in Canadian market, and southern pine producers advantage in U.S. market. Domestic demand is sufficient for full capacity utilization in both regions.

- Thus, British Columbia coastal and United States douglas fir producers are currently in competition for foreign export markets and those portions of Canadian plywood demand which are in excess of the supply capabilities of interior region manufacturers.

Importance of the Softwood Plywood Industry to British Columbia

- Softwood plywood products account for 80 percent of output value of British Columbia veneer and plywood industry (SIC 252). In peak year of 1973, industry shipped output valued at $334 million and directly employed approximately 8,500 British Columbians. Associated indirect employment amounted to 6,800 additional jobs. In terms of total British Columbia manufacturing, the plywood industry represented 5.4 percent of shipments and 5.8 percent of employment.

- The industry's significance extends beyond the sheer magnitude of its production and employment contribution.

- Softwood plywood manufacturing contrasts with the bulk of British Columbia's forest production in that most of the industry's output (80-90%) is directed to Canadian rather

foreign markets. This domestic orientation affords a degree of stability to the total British Columbia economy which is extremely vulnerable to international market fluctuations. (Total British Columbia exports approximate 25 percent of G.P.P. and represent over half of the output of British Columbia's goods producing sector.)

- The softwood plywood industry makes an important contribution in terms of further resource processing: 49 percent of industry's input requirements is raw wood; consumes 7 percent of annual British Columbia raw wood production; transforms to plywood maintaining a value-added-to-shipments ratio of 45 percent, relatively high for British Columbia economy; compared to entire British Columbia manufacturing sector, plywood production forms a relatively labour-intensive, high-wage industry, making it an important job and income generator.

- The industry plays an important role in the interrelated production functions of the entire British Columbia forest products sector. In addition to being a major consumer of raw wood, softwood plywood manufacturers are significant suppliers of intermediate inputs to other forest product industries, providing the following percentage of total input requirements: sash, door and planing industry 11 percent (SIC 254), household furniture manufacturers 6 percent (SIC 261), other wood and furniture industries 3 percent. The industry is also a major input supplier to the prefabricated and mobile home industries, both of which have a strong development potential in British Columbia.

- Softwood plywood manufacturing is also of pronounced importance in terms of British Columbia's regional development objectives.

- Consequently, in addition to direct production and employment losses, potential disruption of British Columbia plywood production would have a sizable impact on the entire forest product sector as well as the regional structure, international sensitivity and development potential of the total Provincial economy.

SOFTWOOD PLYWOOD INDUSTRY PERFORMANCE PATTERNS, AND CAUSAL FACTORS

Performance Patterns

- Following substantial and relatively steady growth in the

1966-73 period, the British Columbia softwood plywood industry experienced serious production declines in 1974-75. Production volumes fell 19.1 percent from peak 1973 levels, precipitating an 18.9 percent employment drop amounting to about 1,600 jobs. The total industry's capacity utilization ratio declined to 74.4 percent in 1975, a substantial drop from a pre-1974 norm approximating 90 percent.

- These losses were not directly attributable to deficiencies in plywood demand levels. During the period of production declines, Canadian demand for softwood plywood products remained extremely strong and actually increased 7.8 percent from 1973 levels. Export demand did dip in 1974, but rebounded strongly in 1975.

- The losses reflect substantial erosions of traditional British Columbia domestic and foreign markets by U.S. producers. Prior to 1972, imports rarely accounted for more than 2 percent of total Canadian demand for softwood plywood products. Reflecting the rapid expansion of domestic demand in the 1972-73 period and the capacity limitations of British Columbia producers, imports increased to account for about 5 percent of total Canadian consumption in 1973. In 1974, imports jumped over 200 percent to capture an 18 percent share at the same time British Columbia producers were experiencing substantial production and employment cutbacks. The year 1975 marked a repeat performance, with imports further expanding to take over 22.8 percent of total Canadian softwood plywood requirements.

- Losses of foreign export market share to U.S. producers was even more severe. From 1970, British Columbia softwood plywood producers have gone from a position of supplying roughly 80 percent of total North American plywood exports to a current market share approximating only 30 percent. In terms of actual quantities, British Columbia plywood exports declined at an average annual rate of 20 percent in the 1973-76 period.

- It is noted that preliminary 1976 data indicate that the British Columbia industry is in the midst of an apparent recovery. Softwood production quantities are up 13.9 percent from depressed 1975 levels, and total industry employment is expected to register a gain of 7.8 percent (approximately 500 jobs). However, a number of considerations suggest that this recovery will be of a limited short-run nature. As detailed below, the fundamental factors underlying the industry's competitive problems persist and many may continue to worsen. Sizable portions of the 1976 production increases are related to inventory accumulations and the industry's inventory-to-shipment ratio

is currently at the highest level since 1971. In total, there is a strong indication that the industry's current recovery will stagnate by mid to late 1977, and production and employment declines will resume in the near future (see Section IV).

- It should be further noted that the British Columbia softwood plywood's recent production and employment losses are almost entirely attributable to the coastal segments of the industry. Demand for interior production has remained strong and expansive, and continues to exceed the supply capabilities of the region.

Causal Factors

- The competitive problems of the British Columbia coastal region softwood plywood industry are attributable to three general factors:

  1. There is a descernible shift in market demand factors affecting both domestic and export consumption which has produced a preference for a type and quality of plywood output mix not currently produced in the Province and not strictly compatible with existing British Columbia production facilities.

  2. British Columbia coastal region producers appear to be operating at a competitive cost disadvantage vis-a-vis U.S. douglas fir manufacturers in all major plywood production cost components.

  3. The combination of U.S. capacity expansions and short-falls in U.S. domestic demand levels has created an over-capacity situation, inducing substantial long term U.S. plywood export development efforts.

  1. Market Trends

  There are two major type (sanded and sheathing) and two major quality (exterior and interior) classifications applicable to the bulk of softwood plywood products. Sheathing plywood constitutes a basic product for structural and construction applications, and sanded plywoods are designed to meet various requirements demanding a smooth surface. Exterior quality products, of both types, are classed as waterproof, and are manufactured with high quality glues and veneers. Interior products are classed as water-resistant and demand lower quality glue and wood inputs.

The growth rate of total market demand for sheathing products has outstripped sanded demand since the early 1960's, causing a shift in production proportions in both the U.S. and British Columbia. Regionally, British Columbia coastal and U.S. douglas fir producers manufacture a full range of products in each type classification, while British Columbia interior region and U.S. southern pine mills tend to specialize in sheathing products. The market preference shifts towards sheathing products has, consequently, enhanced the competitive positions of the latter two regions.

The major difference in U.S. and British Columbia production patterns relates to the quality classifications. British Columbia mills do not manufacture interior grade products. However, over 30 percent of United States sanded output and almost 97 percent of U.S. sheathing production is comprised of these lower quality plywoods. Seventy percent of U.S. sheathing output is related to CDX grade subcomponent, which is manufactured with interior quality wood inputs and exterior quality glues making it a close substitute for exterior sheathing applications.

Two general factors explain why an interior quality production capacity has not been developed in British Columbia. First, Canadian building codes prohibit the use of interior quality plywoods in structural, load-bearing and exposed construction purposes; restricting 30-40 percent of total domestic demand to exterior products. The remaining 60-70 percent of the Canadian end-use market does not face such restrictions, but higher grade exterior plywoods appear to have been employed prior to 1973 because of a lack of competitive substitutes.

The second general factor is related to British Columbia wood quality differentials and production facility constraints. Historically, the British Columbia coastal region timber resource has yielded a percentage of (D) grade veneer which is less than similar actual and potential U.S. availability. Based on pre-1973 market demand trends (which from British Columbia's perspective were not affected by the availability of lower quality substitutes), provincial producers found it more profitable to maximize their output mix quality by patching and splicing limited off-grade veneers to conform to exterior standards. Even with declining veneer qualities, resulting from the near exhaustion of the first harvest timber base, expansion of the British Columbia output mix to include interior quality products was discouraged because of the costs involved in converting existing production facilities.

Compared to exterior quality products, U.S. interior plywoods displayed a substantial final product price advantage in both the Canadian domestic and export markets throughout most of the 1970-76 period. Analysis of 1974-76 U.S. export data suggests most of the market share losses resulted from penetrations of interior quality plywoods (mostly CDX).

2. Productivity and Cost Comparisons

Analysis of the total productivity performance of the U.S. and British Columbia plywood industries in the 1966-73 period suggest a gradual development of competitive problems prior to the dramatic domestic and export market erosions experienced by British Columbia producers in 1974-75.

In the 1966-76 period, the average annual growth in real value of output was identical for both areas, but performance similarities cease at that point. U.S. producers achieved their output expansions while reducing net labour requirements at a rate approximately 2 percent per annum. Similar rates of output growth in British Columbia required an increase in labour inputs amounting to 1.4 percent yearly. During the same period, British Columbia veneer and plywood industry wage increases outpaced the U.S. experience by an average annual rate of 2 percent.

Focusing on comparable production cost data for the British Columbia coast and U.S. douglas fir regions, U.S. manufacturers appear to have enjoyed substantial advantages in all major cost components by 1972. Douglas fir advantage in terms of percentage cost differential: wood - 34.8 percent; glue - 8.1 percent; direct labour - 23.0 percent; mill overhead and administration - 13.4 percent; total - 25.3 percent. (Components as percent of total cost: wood - 38.5 percent; glue - 3.4 percent; direct labour - 31.1 percent; mill overhead and administration - 27.0 percent.)

With the exception of wood costs, the differentials for all components widened considerably in the 1972-75 period.

A number of interrelated factors contributed to this adverse competitive situation, but two in particular appear of major significance. First, the pronounced orientation of British Columbia coastal manufacturers towards the production of high quality plywoods has contributed to the region's comparative disadvantage in all components. The quality of the output mix appears

directly related to higher wood and glue costs, as well as a higher direct labour cost associated with veneer and panel patching requirements. The area's timber resource is providing a smaller and lower quality peeler log supply which is becoming increasingly incompatible with existing high quality production techniques (a factor which has tended to increase maintenance costs in the overhead and administration component). Production of a full line of high quality plywoods also appears to have retarded product specialization and the exploitation of economies of scale in the coastal region.

The second consideration relates directly to labour costs. Since 1970, British Columbia wage increases have substantially exceeded the douglas fir region's labour compensation patterns, completely disrupting the competitive relationships of the late 1960's and early 1970's. The British Columbia industry's straight-time rates were $.12 per hour lower in 1970, but currently exceed hourly douglas fir wages by $1.40.

If British Columbia coastal mills hope to regain cost competitiveness with U.S. producers, reapportionment of the industry's output mix and reversal of recent comparative labour compensation patterns are clearly in order.

3. U.S. Excess Capacity Situation and Export Capabilities

The magnitudes of British Columbia coastal producer's price and cost disadvantages do not fully explain the industry's recent production and employment declines. The factors underlying this adverse competitive situation were clearly evident prior to the substantial domestic and export market erosions of 1974-75.

Before 1973, however, U.S. plywood manufacturers appear to have been indifferent, or adversely inclined to actively pursuing export opportunities. Prior to 1973, U.S. softwood plywood exports never exceeded 2 percent of total output, and the industry seemed totally oriented toward domestic market production.

This domestic orientation was completely shattered by the magnitude of the mid 1973-75 U.S. recession. Faced with serious production declines, a pronounced over-capacity situation, and greatly moderated future domestic demand expectations, U.S. plywood producers turned to the export markets enjoying substantial success at the expanse of British Columbia manufacturers.

In the 1973-75 period, U.S. softwood plywood exports to Canada and the rest of the world expanded at an annual average rate approximating 91 percent. Exports represented 4.3 percent of U.S. production in 1974, further expanding to 6.1 percent of production in 1975.

U.S. export volumes did decline in 1976, a result solely attributable to a 57.1 percent decline in Canadian bound shipments, and an obvious factor in the recent apparent British Columbia production recovery. However, further analysis suggests little cause for optimism. In 1976, U.S. domestic demand jumped by 18.6 percent, causing the U.S. industry's production-to-capacity ratio to rebound to 88.5 percent approximating the optimal 90 percent level. Thus, the export declines are not related to British Columbia competitive improvements, but merely reflect the fact that U.S. manufacturers faced sufficient demand in other markets to meet their optimal output requirements. A sizable re-entry of U.S. plywoods to the Canadian market appears imminent, if and when the U.S. industry's production-to-capacity ratio declines.

Econometric forecasts of future U.S. demand, production and capacity levels (Section IV) suggest that the U.S. softwood plywood industry will have substantial supply capabilities in excess of domestic demand requirements throughout the 1977-85 period. Projected U.S. export availability in 1980-85 exceeds the total volume of current British Columbia production. This suggests that the British Columbia industry's competitive challenge is not over, but may have just begun.

III. THE BRITISH COLUMBIA SOFTWOOD PLYWOOD INDUSTRY GATT AND COMMERCIAL POLICY CHALLENGE, AND RELATED PROVINCIAL GOVERNMENT POLICY OPTIONS

- As mentioned in the summary overview, the competitive pressures on the British Columbia softwood plywood industry may intensify as a direct result of tariff reductions at the current round of GATT. International agreement on a general tariff reduction formula has not yet been reached, but the concensus indicates that a solution approximating the U.S. tariff proposal will be accepted. Such an agreement would drop the current ad valorem protection afforded British Columbia softwood plywood products from 15 to 6 percent.

- Such a tariff reduction would substantially increase the vulnerability of provincial producers to import injury in the Canadian domestic market (which represents over 80 percent of the total demand for British Columbia plywood). Although foreign tariffs would be reduced by a similar proportion, the stimulation of British Columbia exports would be minor because of the aforementioned competitive problems vis-a-vis U.S. producers.

- The British Columbia plywood industry, under the auspices of the Council of Forest Industries (COFI), has requested a tariff cut exemption for softwood plywood products. Federal GATT officials have informally indicated opposition to the industry's request. However, a formal statement by the Government of British Columbia is viewed as a key factor in determining whether or not a tariff exemption will be provided.

Factors Affecting Provincial Stance

- A tariff exemption entails potentially substantial opportunity costs since it may precipitate compensating exemptions by other GATT members, and GATT procedures do not limit such compensating actions to similar product groups. Consequently, a Canadian exemption on softwood plywoods could lead to foreign responses to the direct detriment of other British Columbia exporters, completely unrelated to the veneer and plywood industry.

- As detailed in the Ministry's GATT Cabinet Submission, British Columbia's aggregate economic development objectives require a substantial liberalization of international trade and tariff restrictions. For this reason, the Provincial Government has adopted a general GATT policy stance calling for the maximum possible reductions of tariffs and non-tariff measures at the current negotiations, subject to exceptions for a narrowly defined range of "special problem areas." This position has specifically called for a reorientation of past Canadian trade policy away from protection of the end-product manufacturing sector, a policy which, in the past, has precipitated domestic economic inefficiencies and precluded foreign tariff concessions on semi-processed and fabricated product groups. Both of these factors are considered to have been disadvantageous to the Province's total economic development and export potential. This policy stance implies that Canada should attempt to minimize tariff exemptions at the current GATT Round.[1]

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1. "Significance of GATT to British Columbia," Ministry of Economic Development, December 1976.

- The key question, then, is whether the competitive problems of the British Columbia softwood plywood industry constitutes a sufficient "special problem" to justify an exception to the province's general GATT position. Three general considerations are involved:

  1. Whether an industry's importance to the total Provincial economy is of a magnitude to precipitate unacceptable adjustment problems in the event of import injury;

  2. Whether an industry has sufficient development potential eventually to become internationally competitive, provided that it is afforded temporary domestic market protection to facilitate the development process; and/or

  3. Whether special circumstances exist which tend to place an industry at a temporary or artificial competitive disadvantage.

- Elements of each factor appear applicable to the British Columbia softwood plywood industry, but the final decision should rest on broader considerations of the industry's competitive problems. The industry's future viability appears to demand major adjustments in its basic structure, cost functions and output mix orientation. Tariff maintenance, without such adjustments, will do little more than delay an inevitable economic adjustment problem.

- Consequently, provincial efforts to maintain softwood plywood tariff protection, in the absence of a commitment to improve the coastal industry's competitive performance, could be viewed as:

  - The perpetuation of an inefficient and noncompetitive industrial segment;

  - A significant compromise in the province's GATT policy stance; and,

  - The inducement of compensating tariff exemptions by other GATT members which could prove disadvantageous to non-related British Columbia exporters.

Policy Option One: Province Allows Softwood Plywood Products to Fall Under the General GATT Tariff Reduction Formula

- If it is concluded that the factors contributing to the competitive disadvantage of British Columbia softwood plywood producers are not correctable, and that production and

employment dislocations are inevitable developments of an acceptable magnitude, the concept of continued tariff protection could be logically rejected by the Provincial Government.

- Given existing Federal sentiments, such a rejection would most likely be guaranteed by either an active or passive Provincial role on the tariff exemption issue.

- However, other considerations support an active role if Option One is selected:

  - It would strengthen the Province's announced free trade commitment; in addition it would serve to indicate the nature and extent of the industry's problems, establishing the case for GATT related adjustment assistance;

  - It would enhance the Province's ability to oppose non-related requests for exemptions (i.e. textiles) which may prove harmful to British Columbia's economic development interests.

Policy Option Two: Provincial Support for Softwood Plywood Tariff Maintenance, Without a Commercial Policy Commitment

- If the Provincial Government concludes that production and employment dislocations stemming from a reduction in softwood plywood tariffs constitute an excessive adjustment problem, or that the industry's importance to the entire forest sector's operations and/or total British Columbia economy is of a magnitude to justify its continued existence despite competitive problems, a tariff exemption may be validly pursued.

- As detailed in the body of the text, this exemption could take several forms, and the Government of British Columbia is viewed as having sufficient political leverage, vis-a-vis Federal GATT negotiations, to force the issue.

- Such a policy would, however, entail the adverse implications noted above.

Policy Option Three: Tariff Maintenance in Support of Commercial Policy Developments to Improve the British Columbia Softwood Plywood Industry's Competitive Position

- Option Three calls for the same basic stance on the tariff exemption issue as Option Two, but is significantly different in intent. Here, continued protection is designed not to delay an adjustment problem, but to support commercial policy developments aimed at reestablishing the British Columbia softwood plywood industry's competitive footing.

- Under Option Three the Government of British Columbia could support the concept of temporarily retaining Canadian trade and tariff protection for the softwood plywood industry subject to the following conditions:

- The task force will formulate, implement and monitor commercial policy initiatives to facilitate:

  a. A reorientation of existing coastal industry production patterns towards the output of a competitive, lower quality, lower priced product mix;

  b. Moderation of wage escalations sufficient to narrow substantially the industry's current direct labour cost disadvantage vis-a-vis producers in the douglas fir region;

  c. Rationalization of existing coastal region production facilities including the closing of obsolete mills, new investment and capital equipment modernization, as well as possible mergers, acquisitions and interindustry market allocation arrangements designed to enable product specialization and the exploitation of potential economies of scale.

IV. FUTURE POTENTIAL OF THE BRITISH COLUMBIA SOFTWOOD PLYWOOD INDUSTRY: PRODUCTION AND EMPLOYMENT PROSPECTS UNDER EACH PROVINCIAL GOVERNMENT POLICY OPTION 1977-85

- Econometric models and forecasts provide imperfect methods for projecting future events, but do support rough approximations of the British Columbia softwood plywood industry's development potential.

- Such potential is ultimately related to the total level of future world demand for North American produced plywood, with factors of comparative advantage, including tariffs, determining what portions of this demand can be competitively supplied by British Columbia producers.

- Based on MED projections, aggregate demand for North American softwood plywood (i.e. the sum of U.S. domestic, Canadian domestic and foreign export demands) is expected to display relatively strong growth in the 1977-85 period. A 3.42 percent average annual rate of expansion is projected roughly approximating the 1965-72 growth performance. Reflecting a continuation of recent market trends, aggregate demand for sanded plywoods will register a marginal decline (-0.63%/annum) with increased sheathing requirements (4.37%/annum) accounting for total demand growth.

- Reflecting projected cyclical fluctuations in U.S. and Canadian economic performance this demand growth will develop in an uneven fashion. Weak aggregate demand levels are projected for 1978 and the 1981-82 period, suggesting potentially serious disruptions of the total North American industry's production and employment patterns.

Control Solution

- In order to specify the sensitivity of British Columbia future softwood plywood production and employment potentials to each of the policy options, a base forecast is required. Ideally, such a control solution should reflect a status quo situation unaffected by policy variations. Consequently, the appropriate assumptions for this forecast are:

  1. The Canadian tariff on softwood plywood products is retained at 15 percent ad valorem; and

  2. The production cost and output price differentials between U.S. douglas fir and British Columbia coast region manufacturers maintain their current proportional relationships throughout the forecast period.

- Unfortunately assumption 2 is not really an appropriate reflection of a status quo situation. As detailed in Section II, the British Columbia coast competitive disadvantage resulted from gradual long term developments, with the cost and price differentials widening considerably in the 1972-75 period. Consequently, freezing the proportional differentials for the forecast period implies improvements in the British Columbia coastal industry's recent competitive performance, entailing some of the commercial policy developments of Option Three.

- Despite this factor, assumption 2 is employed for the control solution, yielding the following projected British Columbia production and employment potentials:

BRITISH COLUMBIA POTENTIALS - CONTROL SOLUTION

	Production (billion sq.ft. 3/8" basis)			Employment* (number of jobs)		
Period	Sanded	Sheathing	Total	Direct	Indirect**	Total
1977	.400	1.614	2.014	8,056	6,445	14,501
1978	.415	1.138	1.553	6,212	4,707	11,182
1979	.550	1.399	1.949	7,718	6,176	13,894
1980	.586	1.521	2.107	8,259	6,607	14,866
1981	.577	1.508	2.085	8,090	6,472	14,562
1982	.590	1.569	2.159	8,291	6,633	14,924
1983	.596	1.622	2.218	8,428	6,742	15,170
1984	.603	1.677	2.280	8,573	6,858	15,431
1985	.614	1.734	2.348	8,735	7,988	15,723
Average Annual Growth (1977-1985) - %						
	6.69	.92	2.07	1.05	1.05	1.05

* Employment related to total veneer and plywood industry.

** Indirect employment multiplier: F.L.C. Reed and Associates estimates.

- The combined effects of tariff maintenance and static cost and price differentials are projected to allow moderate growth in British Columbia production and employment levels. For the entire forecast period, softwood plywood production is expected to expand at an annual rate of 2.07 percent, permitting a 1.05 percent annual average increase in total industry employment. This projected performance is, however, quite erratic. Reflecting aggregate demand factors, the current British Columbia production recovery is expected to stagnate in 1977, and the industry appears vulnerable to substantial production declines in 1978. Consequently, a sizable provincial adjustment problem may develop in 1978 regardless of trade and commercial policy decisions.

- Post-1978 performance patterns are somewhat more stable. It is expected that 1979 will witness a strong resurgence in demand, precipitating sizable British Columbia production and employment gains. With the exception of slight declines in 1981, provincial production and employment levels are projected to continue on a moderately expansive path through 1985.

British Columbia Softwood Plywood Industry Potential Under Policy Option One

- The Policy Option One forecast is based on the following assumptions:

  1. Canada agrees to subject softwood plywood duties to a general 60 percent GATT tariff reduction formula, dropping the current domestic market protection from 15 to 6 percent ad valorem. This reduction is implemented in 1979.

  2. British Columbia coastal producers do not initiate any actions (i.e. new investment, production rationalization, etc.) to improve their competitive position vis-a-vis U.S. douglas fir manufacturers. Consequently, production cost and output price differentials between the two regions continue to widen at a rate approximating the 1971-76 historical experience.

- Reflecting increased U.S. plywood penetrations into the Canadian and foreign export markets, both British Columbia production and employment levels are expected to decline at an average annual rate of 4.24 percent throughout the 1977-85 forecast period. Prior to 1979, the pattern of this performance roughly approximates the control solution; the British Columbia current production recovery stagnates in 1977 leading to dramatic output and employment declines in 1978. The 1979-80 period witnesses some improvement, but to a much lesser extent than the control forecast. After 1980 the British Columbia industry is projected to experience relatively steady production and employment losses.

- The forecast also implies a forced rationalization of total British Columbia production on a regional basis. For the 1981-85 period, total demand for British Columbia sheathing output is projected to be barely sufficient to meet the maximum production capabilities of interior region manufacturers. Consequently, coastal mills may be forced to suspend sheathing production as early as 1981, and limit their operations to meeting the demands of the limited sanded plywood market.

- The magnitude of provincial production and employment losses compared to the potentials obtainable under the control solution are detailed below.

BRITISH COLUMBIA PRODUCTION AND EMPLOYMENT
OPPORTUNITY LOSSES ASSOCIATED WITH POLICY OPTION ONE
(OPTION ONE VS. CONTROL SOLUTION)

	Production (billion sq.ft. 3/8" basis)			Employment (number of jobs)		
Period	Sanded	Sheathing	Total	Direct	Indirect	Total
1977	.017	.058	.075	300	240	540
1978	.032	.069	.101	404	323	727
1979	.140	.434	.574	2,218	1,774	3,992
1980	.155	.500	.655	2,459	1,961	4,420
1981	.168	.569	.737	2,698	2,158	4,856
1982	.181	.635	.816	2,919	2,335	5,245
1983	.196	.701	.897	3,144	2,515	5,659
1984	.211	.773	.984	3,389	2,711	6,100
1985	.223	.845	1.068	3,615	2,892	6,507
Average for 1977-85 Period						
	.147	.509	.656	2,388	1,910	4,298

- These estimates provide a rough approximation of the magnitude of the British Columbia production and employment adjustment problem associated with a tariff cut and the continued competitive inefficiency of the British Columbia coast softwood plywood industry.

British Columbia Softwood Plywood Industry Potential Under Policy Option Two

- The Policy Option Two forecast is based on the following assumptions:

  1. Based on recommendations from the Government of British Columbia, the Canadian GATT negotiating team seeks and achieves a tariff exemption on softwood plywood products at the Tokyo Round of negotiations.

  2. Neither the industry nor federal or provincial governments initiate any commercial policy efforts to improve the competitive performance of the British

Columbia coastal softwood plywood industry. Consequently, production cost and output price disadvantages vis-a-vis the douglas fir region continue to increase at a rate approximating the 1971-76 historical experience.

- The Policy Option Two forecasts approximates the Option One solution minus the effects of a tariff reduction. The tariff retards future U.S. import penetrations into the Canadian market, but this protection is insufficient to prevent total British Columbia production and employment declines related to the continued demise of coastal region competitiveness vis-a-vis U.S. douglas fir producers.

- The losses in both categories are expected to occur at an annual average rate of 0.92 percent during the entire 1977-85 period. The same cyclical pattern of previous forecasts is evident, with 1978 developing as a particularly poor year. Tariff maintenance, however, permits a substantial British Columbia production and employment recovery in the 1979-80 time frame. Losses reappear in 1981 followed by a stagnated growth period in 1982-83. Production and employment levels are expected to resume their long term negative adjustment trend in 1984-85. A forced rationalization of total provincial production is again implied, with large scale liquidations of coastal sheathing capacity appearing as the most likely alternative.

- Compared to the production and employment levels obtainable under the control solution, the potential British Columbia losses associated with Policy Option Two are detailed below.

BRITISH COLUMBIA PRODUCTION AND EMPLOYMENT
OPPORTUNITY LOSSES ASSOCIATED WITH POLICY OPTION TWO
(OPTION TWO VS. CONTROL SOLUTION)

	Production (billion sq.ft. 3/8" basis)			Employment (number of jobs)		
Period	Sanded	Sheathing	Total	Direct	Indirect	Total
1977	.017	.058	.075	300	240	540
1978	.032	.069	.101	404	323	727
1979	.046	.107	.153	534	427	961
1980	.061	.152	.214	687	549	1,236
1981	.076	.200	.276	854	683	1,537
1982	.091	.252	.343	1,027	822	1,849
1983	.105	.304	.409	1,192	953	2,145
1984	.120	.361	.481	1,377	1,101	2,487
1985	.133	.420	.553	1,555	1,244	2,799
Average for 1977-85 Period						
	.076	.241	.289	920	736	1,656

- In the absence of positive commercial policy initiatives, the British Columbia softwood plywood industry faces substantial employment and product losses, even it tariff protection is retained. Continuation of recent competitive performance trends indicate a production loss exceeding 550 thousand square feet 3/8" basis compared to the 1985 output potential of the control solution. Similar calculations imply a direct employment loss in excess of 1,500 which, combined with indirect effects, represents almost 2,800 job opportunities.

British Columbia Softwood Plywood Industry Potential Under Policy Option Three

- The assumption set for Policy Option Three resembles the control solution with some slight variations:

  1. Domestic market protection for softwood plywood manufacturers is retained, either by maintaining the current 15 percent duty, or adopting some form of quota system, or limiting GATT tariff reductions to a narrow range of high quality plywoods which are not vulnerable to extensive import injury.

  2. Appropriate segments of the industry, organized labour and the Federal and Provincial Governments jointly undertake a coordinated commercial policy development effort aimed at improving the competitive performance of the British Columbia coastal plywood industry.

  3. (Variation A) Commercial policy efforts prove effective enough to prevent further widening of production cost and output price differentials between U.S. douglas fir and British Columbia coastal manufacturers.

  4. (Variation B) Commercial policy efforts prove effective enough to permit some improvement in the British Columbia coastal competitive disadvantage.

- Employing assumption 3 (Variation A) the forecast is identical to the control solution. The potential British Columbia production and employment losses detailed under Policy Options One and Two can alternately be viewed as the gains which could result if Option Three were adopted.

- However, several analytical refinements embodied in the control solution should be noted. The forecast assumes productivity improvements by British Columbia coastal region producers. Measuring such improvements in terms of output

per man hour, commercial policy efforts are estimated to allow a modest 7.0 percent increase in coastal productivity performance by 1985. Because of the nature and extent of the current competitive problem and existing production rigidities, these improvements are not expected to have an impact on British Columbia's comparative performance prior to the general resurgence in world plywood demand projected for 1979. In the 1979-85 period, the productivity increases are expected to develop in a gradual incremental fashion. It should be further noted that these improvements primarily result from the potential productivity gains inherent in the production of a lower quality (and hence lower cost) output mix, and do not entail excessive efforts to constrain British Columbia industry wage escalations. In short, the control solution appears as a reasonable approximation of the industry's future potential, provided efforts are undertaken to reorient the output mix and British Columbia wage increases approximate the rate of similar escalations in the U.S. douglas fir region.

- With a more extensive commercial policy development effort (i.e. assumption 4, Variation B), the future potential of the British Columbia softwood plywood industry could be further enhanced. Such efforts would entail a narrowing of current direct labour cost differentials and an active industry-government program aimed at facilitating the rationalization of coastal production facilities. In total, MED estimates that such a program could precipitate a 17.5 percent improvements in coastal productivity by 1985. Reflecting the same considerations employed in the control forecast, the discernible impacts of these improvements would most likely be delayed until 1979, and gradually develop after that point.

- British Columbia competitive improvements of this magnitude in tandem with retention of domestic market tariff protection are estimated to allow sizable additional employment and production gains. Under the "most favourable" Policy Option Three forecast, production is expected to expand at an annual average rate of 5.26 percent, permitting a 2.15 percent increase in total industry employment during the 1977-85 period. The pattern of these developments is detailed below.

BRITISH COLUMBIA POTENTIALS - "MOST FAVOURABLE"
POLICY OPTION THREE FORECAST

	Production (billion sq.ft. 3/8" basis)			Employment* (number of jobs)		
Period	Sanded	Sheathing	Total	Direct	Indirect**	Total
1977	.400	1.614	2.014	8,056	6,445	14,501
1978	.415	1.138	1.553	6,212	4,970	11,182
1979	.563	1.445	2.008	7,831	6,265	14,096
1980	.612	1.594	2.206	8,383	6,706	15,089
1981	.616	1.665	2.281	8,440	6,752	15,192
1982	.641	1.785	2.476	8,734	6,987	15,721
1983	.659	1.902	2.561	8,963	7,107	16,133
1984	.676	2.024	2.703	9,190	7,352	16,542
1985	.704	2.159	2.863	9,448	7,558	17,006
Average Annual Growth (1977-1985) - %						
	9.50	4.22	5.26	2.15	2.15	2.15

* Employment related to total veneer and plywood industry.

** Indirect employment multiplier: F.L.C. Reed and Associates estimates.

The Significance of the Softwood Plywood Industry Trade and Commercial Policy Challenge to British Columbia

- Based on the projections of Section IV, each of the Provincial Government's basic policy options entails a different set of economic impacts. The range of these potential impacts, as indicated by the differentials in British Columbia produciton and employment prospects based on comparisons of Policy Option One and the "most favourable" Policy Option Three solutions, are detailed below.

RANGE OF POTENTIAL B.C. PRODUCTION AND EMPLOYMENT ADJUSTMENTS (OPTION ONE VS. OPTION THREE)

	Production (billion sq.ft. 3/8" basis)			Employment (number of jobs)		
Period	Sanded	Sheathing	Total	Direct	Indirect	Total
1977	.017	.058	.075	300	240	540
1978	.032	.069	.101	404	323	727
1979	.153	.480	.633	2,331	1,865	4,196
1980	.181	.573	.754	2,583	2,066	4,649
1981	.207	.726	.933	3,048	2,438	5,486
1982	.232	.851	1.083	3,362	2,690	6,052
1983	.259	.981	1.240	3,669	2,935	6,604
1984	.284	1.120	1.404	4,006	3,205	7,211
1985	.313	1.270	1.583	4,328	3,462	7,790
			Average for 1977-85 Period			
	.186	.681	.867	2,707	2,167	4,876

- Compared to the most favourable alternative, a softwood plywood tariff reduction could entail the loss of over 1.5 billion square feet in production volume and over 4,300 direct and almost 8,000 total British Columbia job opportunities by 1985. This would force a virtual suspension of coastal sheathing production, constraining the region to limited high quality sanded operations.

- However, if trade and tariff protection is retained, at least temporarily, and if effective commercial policy initiatives to improve the industry's competitive performance are undertaken, these potential losses could be avoided. Such a policy would allow the coastal industry to survive the slump in world plywood demand projected for 1978, and could precipitate a substantial long term recovery in the 1979-85 period.

CONCLUSIONS AND RECOMMENDATIONS

Rationale

- The policies of the Government of British Columbia in response to the trade and commercial policy challenge facing the softwood plywood industry should reflect two basic considerations. First, based on the analysis of this

report, it must be concluded that the coastal segments of the British Columbia industry remain extremely vulnerable to import injury and will suffer substantial employment and production dislocations in the event of reductions in domestic market tariff protection. In addition to direct losses, these potential dislocations entail adverse implications for the other components of the entire forest sector as well as the aggregate performance of tht total provincial economy. Second, and largely independent from tariff considerations, it must also be concluded that major portions of the coastal industry are currently noncompetitive on an international basis. Substantial portions of traditional domestic and export markets have been lost to U.S. competitors, and additional future market erosions appear imminent without competitive improvements on the industry's behalf. However, the deteriorating trends of comparative performance witnessed in the 1972-76 period raise questions regarding the industry's ability to achieve competitive improvements independently.

- Consequently, the Government's GATT policy position regarding softwood plywood cannot be separated from its broader economic goals. The province's future requirements demand the continued development of an efficient internationally competitive economic base. While the government wishes to minimize the potential loss of plywood related production and employment opportunities, the economic inefficiency costs associated with the perpetuation of a noncompetitive industrial segment cannot be ignored. It is therefore recommended that the Government of British Columbia's support for continuation of trade protection for softwood plywood products be contingent upon a substantial and coordinated effort by industry, organized labour and the Federal and Provincial Governments to improve the competitive performance of the British Columbia softwood plywood industry. This represents adoption of Policy Option Three, entailing the following initiatives by the provincial government.

1. Official Statement of Concern

   It is recommended that the Government of British Columbia make a formal statement of concern regarding the future viability of the coastal region's softwood plywood industry to appropriate segments of the industry, organized labour and the Government of Canada. Said statement should be supported by a Cabinet approved version of the preceding Ministry of Economic Development report: "The Trade and Commercial Policy Challenge facting the British Columbia Softwood Plywood Industry."

2. Bilateral Discussions

It is recommended that the Government of British Columbia initiate a set of concurrent bilateral discussions with all interested parties to explore the means and feasibility of competitive improvements.

a. Provincial Government - Industry Discussions

Participants: Ministry of Economic Development, Ministry of Forests, all British Columbia plywood producers and related industry associations.

Objectives: Common understanding of industry's trade and commercial policy challenge, specification of industry's future development intentions, identification of potential provincial and/or federal government measures which would aid the industry's competitive improvement. In addition, industry representatives will be requested to provide data for a level-of-the-firm study, sponsored by the Ministry of Economic Development, to determine the extent to which individual mills are susceptible to production and employment displacements, and require plant and equipment modernization.

Resultant Policy Decisions: Government of British Columbia will decide whether or not it will support the concept of continued trade and tariff protection on softwood plywood products.

Timing: Complete discussion of current competitive challenge - May 1, 1977; specification of industry development intentions and results of level-of-the-firm study - June 1, 1977; formal government position on tariff exemption issue - June 15, 1977.

b. Provincial Government - Federal Government Discussions

Participants: Ministry of Economic Development, Department of Industry, Trade and Commerce and Department of Finance (CATT officials).

Objectives: Common understanding of industry's trade and commercial policy challenge, specification of federal concerns regarding softwood plywood tariff exemption, discussion of potential magnitude and form of federal adjustment and/or industrial incentive assistance to aid softwood plywood industry development, discussion of possible policy revisions to aid rationalization of British Columbia plywood production (i.e. taxes, competititon policy, etc.).

Timing: Complete preliminary rounds of discussion - June 1, 1977.

c. Provincial Government - Organized Labour Discussions

Participants: Ministry of Economic Development, Ministry of Labour and International Wood Workers Union.

Objectives: Common understanding of industry's trade and commercial policy challenge, specification of labour's concerns regarding technological innovations, industry output mix reorientation, and wage aspirations.

Timing: Complete preliminary round of discussions - June 1, 1977.

3. Establishment of Task Force for Softwood Plywood Industry Development

The bilateral discussions will determine the feasibility of potential adjustments in industry structure, cost functions and output mix orientation designed to improve the competitive performance of the British Columbia softwood plywood industry. If it is concluded that such improvements are possible, it is recommended that the Government of British Columbia establish a formal task force for the softwood plywood industry development. The task force will include selected representatives from the industry, organized labour and the federal and provincial governments, and will formulate, implement and monitor a commercial policy program to facilitate:

a. A reorientation of existing coastal industry production patterns towards the output of a competitive lower quality, lower priced product mix;

b. Constraint of wage escalations sufficient to narrow substantially the industry's current direct labour cost disadvantage vis-a-vis U.S. producers in the douglas fir region;

c. Rationalization of existing coastal region production facilities including the closing of obsolete mills, new investments and capital equipment modernization, as well as possible mergers, acquisitions and inter-industry market allocation arrangements designed to enable product specialization and the exploitation of potential economies of scale.

4. Trade and Tariff Recommendations

If an appropriate commercial policy effort is undertaken, it is recommended that the Government of British Columbia formally endorse the concept of continued Canadian domestic market trade protection for softwood plywood products. This endorsement will be formulated and communicated to federal GATT officials by one of the following provincial policy stances:

a. The Government of British Columbia requests that existing Canadian tariffs on softwood plywood products be replaced with a system of import quotas which will effectively guarantee a fixed proportion of future domestic demand to Canadian producers;

b. The Government of British Columbia requests that softwood plywood products be specifically excluded from the items that Canada will expose to general tariff reductions at the Tokyo Round of GATT (i.e. the Canadian tariff on softwood plywood should remain at 15 percent ad valorem); or

c. The Government of British Columbia requests that Tokyo round general tariff reductions be limited to a narrow range of plywood products, to include only exterior sanded and sheathing panels of grade CXC or higher.

The exact form of the province's GATT position will be formulated based on specific recommendations of the task force.

5. In anticipation of significant import injury in the 1978 period, the task force in conjunction with the British Columbia Ministry of Economic Development will immediately undertake an evaluation of additional support mechanisms including temporary trade protection under Article XIX of the General Agreement on Tariffs and Trade. If the 1978 situation threatens to jeopardize longer-term development effects, initiation of safeguard actions will be recommended to the federal government.

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TRADE AND COMMERCIAL CHALLENGE FACING THE BRITISH COLUMBIA SOFTWOOD PLYWOOD INDUSTRY

REPORT PREPARED BY
MINISTRY OF ECONOMIC DEVELOPMENT

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INTRODUCTION

The softwood plywood industry is of considerable importance to British Columbia. Plywood and related veneer production approximate over five percent of the value of the province's total annual manufacturing output and account for about six percent of direct manufacturing employment. Direct and indirect employment associated with the industry currently totals approximately 13,334 British Columbia jobs.[1] Plywood manufacturing forms an important component of integrated forest product production, and the health of the industry directly affects the economic performance of the entire forest sector.

Since 1973, segments of the British Columbia softwood plywood industry have experienced sizable production and employment declines. These declines are associated with a substantial erosion of domestic and export market share, suggesting that the industry suffers from serious competitive problems. Significantly, competitive pressures on the industry may intensify in the near to intermediate time frame as a direct result of tariff adjustments stemming from the current round of international negotiations under the General Agreement on Tariffs and Trade (GATT). The industry's domestic market production is presently afforded 15 percent ad valorem protection by the Canadian tariff, but this may be substantially reduced as a result of emerging GATT agreements.

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1. Indirect employment multiplier based on F.L.C. Reed and Assoc. estimates in "The Forest Industry - Its Impact on the Economy."

This paper presents a detailed assessment of the factors underlying the British Columbia softwood plywood industry's current production and employment dilemma and the associated provincial GATT policy challenge. Section I examines structural characteristics of the industry and details the importance of plywood production to the province's overall economic performance and future development objectives. Section II reviews the industry's recent competitive problems in an effort to isolate causal factors. Section III outlines the related GATT adjustment challenge, detailing potential policy options open to the provincial government. Section IV forecasts industry production and employment prospects for the 1977-85 period under a varying set of economic scenarios and trade and commercial policy alternatives. Section V presents policy recommendations.

I. STRUCTURE AND ECONOMIC IMPORTANCE OF THE BRITISH COLUMBIA SOFTWOOD PLYWOOD INDUSTRY

Basic Industry Structure and Competitive Situation

The leading characteristic of the North American softwood plywood industry in general, and the British Columbia industry in particular, is its differentiability into distinct classifications. Softwood plywood production should be viewed within the context of two industrial segments, each operating in a somewhat different competitive environment. The output mix of each segment differs as does performance characteristics and problems.

British Columbia production is geographically separable into the coastal (economic development regions 05 and 06) and interior (economic development regions 02, 03 and 07) regions. Coastal mills generally produce a full range of plywood products, with a pronounced orientation towards premium grades. Most of these mills were established prior to 1955 and in many cases operate dated equipment and production techniques. The timber resource in the coastal region (predominantly douglas fir) supports the production of high quality products, but average diameters of peeler logs have tended to shrink over time as a result of lower quality first growth harvesting. Thus, many coastal mills have encountered equipment obsolescence problems as existing plants cannot process smaller diameter logs with maximum production efficiency.

Employing technological innovations which permit economical plywood manufacturing from smaller diameter, lower

quality peeler logs (primarily spruce and pine species), a sizable softwood plywood industry has developed in the interior region since 1965. Interior production is limited primarily to sheathing products within a narrower range of plywood grades. Interior mills are highly mechanized with modern equipment and production techniques.

Canadian plywood manufacturing is primarily a British Columbia activity, with the province accounting for approximately 90 percent of total national production. Major competition in domestic and export markets is provided by the United States, which maintains an industry approximately eight times the size of British Columbia's. Similar regional distinctions are applicable to the U.S. industry, with rough comparabilities existing between the B.C. coast and U.S. douglas fir regions (Washington, Oregon, California) and the B.C. interior and southern pine regions (Southern American states). It should be noted, however, that the U.S. production in both regions includes a wide variety of lower quality plywoods of a type not produced in Canada (the implications of output mix differences are discussed in detail in Section II). The size of the U.S. domestic market has also permitted product specialization and exploitation of economies of scale to a greater extent than British Columbia.

As detailed in Table 1, most of the recent growth of North American softwood plywood production has occurred in the interior and southern pine regions.

Table 1. Regional Distribution of Total Softwood Plywood Production (all figures in percent)

	Share of B.C. Production		Share of U.S. Production	
Year	Coast	Interior	Douglas Fir	Southern Pine
1970	78.0	22.0	71.6	23.4
1971	76.6	23.3	67.4	32.6
1972	70.0	30.0	65.0	35.0
1973	67.5	32.5	63.4	36.4
1974	61.5	38.5	61.5	38.5
1975	58.6	41.4	60.0	40.0
1976P	61.7	38.3	n/a	n/a

Both regions have experienced a steady increase of product share and currently represent about 40 percent of total output in their respective production areas.

Softwood plywood production in both British Columbia and the United States has had a basic domestic orientation. Prior to 1973, U.S. plywood exports rarely exceeded 2 percent of total production. Exports have historically accounted for about 20 percent of B.C. production, but the fact that the remaining 80 percent of output is destined for Canadian markets clearly distinguishes plywood producers from the heavy export orientation of other provincial forest product manufacturers. However, as discussed in much greater detail in Section II, the market orientation of the industry in both countries is currently undergoing substantial shifts. Reflecting capacity expansions and domestic demand shortfalls, the U.S. has experienced a substantial export availability in recent years. Most of this supply originates in the douglas fir

region, as North American end use market demand trends and southern pine cost performance (factors detailed in Section II) have provided the latter region with a competitive advantage in the U.S. market. Similar factors afford B.C. interior producers with a comparative edge in the Canadian market, leaving the following competitive situation: B.C. coastal producers and U.S. douglas fir producers are now in direct competition for foreign export markets and those segments of the Canadian plywood demand which are in excess of the supply capabilities of interior producers.

Importance of the Softwood Plywood Industry to British Columbia

Before detailing the nature and implications of the competitive challenge, it is important to place the significance of the softwood plywood production to the total B.C. economy in proper context. Softwood plywood products account for about 80 percent of the total value of output of the British Columbia veneer and plywood industry (SIC 252). In the peak year of 1973, the industry shipped output valued at over $334 million and directly employed almost 8,500 British Columbians. This activity represented 14.6 percent of total B.C. wood product shipments and 17.1 percent of total provincial employment in wood product manufacturing. In terms of the province's total manufacturing effort, the industry represented 5.4 percent of shipments and 5.8 percent of employment.

The significance of the industry extends beyond the sheer magnitude of its production and employment contribution. As noted above, softwood plywood manufacturing contrasts with the bulk of the province's forest production in that most of the industry's output is directed to the Canadian rather than foreign export markets. Under normal conditions, this domestic orientation tends to afford a degree of stability to an economy which is extremely vulnerable to international market fluctuations and related cyclical adjustment problems (total B.C. exports approximate 25 percent of gross provincial product and represent over half of the output of the province's goods producing sector). Plywood export markets which do exist are well diversified, a factor which tends to reduce the province's pronounced export dependence on the health of the U.S. and Japanese economies (U.S. and Japan represent 71 percent of B.C. total export market, but only 0.5 percent of plywood export demand).

The industry also makes an important contribution in terms of further resource processing. Logs and bolts constitute a dominant part (49 percent) of the total input requirements for veneer and plywood manufacturing, and the industry normally consumes about seven percent of the province's total raw wood production. The industry transforms total inputs into plywood and related output, maintaining a value added in manufacturing to value of shipments ratio which approximates 45 percent; a relatively high proportion

for the B.C. economy. Compared to the entire British Columbia manufacturing sector, plywood and veneer production forms a relatively labour-intensive, high-wage industry. Wages per production worker average 20 percent higher than the mean for the entire B.C. manufacturing sector, and the industry employs 25 percent more units of labour per unit of value added than the "average" B.C. manufacturer. Thus the plywood industry must be viewed as an important job and income generator.

The overall significance of the plywood industry is directly related to its production interrelationships with the other components comprising the total B.C. forest sector. In addition to being a major consumer of raw wood, the industry is an important supplier of intermediate inputs to other wood product manufacturers. Plywood and related veneer products constitute 11 percent of the material input requirements of the sash, door and planing industry (SIC 254), and 6 percent of the requirements of household furniture manufacturers (SIC 261). Other wood and other furniture industries depend on plywood manufacturers for about 3 percent of their inputs. Plywood mills also produce wood chips as a by-product which supports the province's pulp and paper production.

Outside of the formally defined forest product sector, plywood manufacturers are a major input supplier to the prefabricated and mobile home industries. Both industries are viewed as having a strong future development potential in British Columbia, but these prospects could be adversely affected by serious disruptions in plywood supply. Plywood is

also the second most important material input, after lumber, to the residential construction industry.

Softwood plywood manufacturing also has pronounced significance from a regional development standpoint. The majority of the industry's production and employment expansion since 1965 has been in the interior regions of the province. Continuation of this trend would tend to reduce relative economic concentrations in the lower mainland areas, thus supporting provincial objectives of regionally diversifying the economic base.

Although the losses by themselves could be substantial, the impact of international competitive pressures and potential GATT tariff reductions on the British Columbia softwood plywood industry must be viewed in a wider context than simple direct employment and production adjustments. As detailed above, disruption of the province's plywood production will have a direct and sizable impact on the entire forest product sector as well as the regional structure, international sensitivity, and development potential of the total British Columbia economy.

II. SOFTWOOD PLYWOOD INDUSTRY PERFORMANCE PATTERNS, AND CAUSAL FACTORS

General Overview of Industry Performance

Table 2 details the past performance of the entire British Columbia veneer and plywood industry and the softwood plywood component for the 1966-1976 period.

Table 2. B.C. Veneer & Plywood Industry Performance - 1966-76

Period	Growth Real Value Total Veneer & Plywood Shipments (%)	Growth Real Value Soft-wood Plywood Shipments Only (%)	Growth in Soft. Ply. Output (quantity of ply.produced (%)	Growth Employ-ment (%)	Capacity Utiliza-tion Ratio (%)
1966-72*	4.0	1.8	3.3	(-0.1)	89.3
1973	6.5	15.8	11.8	7.8	89.6
1974	(-18.5)	(-18.7)	(-16.6)	(-7.9)	76.0
1975	(-3.0)	(-3.5)	(-2.9)	(-12.0)	74.4
1976P	n/a	n/a	13.9	7.8	87.1

* Annual average rate for period
P Based on MED preliminary estimates

Following substantial growth in value of shipments in the 1966-1973 period, the British Columbia industry experienced serious production declines in 1974-1975. The 1975 real value of total industry shipments represented a loss of 43.3 million in 1967 dollars from the peak production year of 1973 (82 million in current dollars).[1] Employment losses associated with the production declines approximated 1,600

1. Real and current dollar value estimates based on Statistics Canada plywood price indexes.

jobs, an 18.9 percent drop from 1973 levels. Layoffs lagged the production declines as the bulk of production losses occurred in 1974 with the largest employment drop in 1975. Softwood plywood products were the predominant factor in the declines, with both real value and quantity of output registering substantial decreases. The total industry's capacity utilization ratio declined to 74.4 percent in 1975, a substantial drop from a pre-1974 norm approximating 90 percent. Net reductions of production capacity occurred in the coastal region.

Based on preliminary production and employment estimates for 1976, the industry appears to be in the midst of a substantial recovery. Softwood production quantities are up 13.9 percent from depressed 1975 levels, and total industry employment is expected to register a gain of 7.8 percent (approximately 500 jobs). However, a number of considerations suggest that this recovery will be of a limited short-run nature. As detailed in the following sections, the fundamental factors underlying the industry's competitive problems persist and many may continue to worsen. Further analysis of the 1976 data indicates that sizable portions of the production increases are related to inventory accumulations and that the industry's inventory-to-shipment ratio is currently at the highest level since 1971. In total, there is a strong indication that the industry's current recovery could stagnate by mid to late 1977, and there is a distinct possibility that production and employment declines may resume (detailed projections of the industry's

future production and employment potentials are presented in Section IV).

Further understanding of the industry's past performance is aided by reference to total Canadian softwood plywood production and market demand trends. Since B.C. accounts for about 90 percent of total Canadian production and 99 percent of softwood plywood exports, such perspective accurately reflects provincial production patterns and additionally allows an analytical integration with trade and market developments. The relevant data are presented in Table 3.

Table 3. Canadian Softwood Plywood Trends 1970-1976 (all figures: quantities - million square feet 3/8"; except ratios and growth rates - %)

Period	Shipments	Exports	Imports	Domestic Consumption	Ratio: Imports / Domestic Consumption	Ratio: Exports / Shipments
1970	1,917	401	12	1,527	0.8	20.9
1971	2,010	363	15	1,752	0.9	17.3
1972	2,272	449	93	1,916	4.8	19.7
1973	2,471	492	105	2,083	5.0	19.9
1974	2,051	365	370	2,056	18.0	17.8
1975	2,014	282	513	2,245	22.8	13.9
1976P	2,180	225	220	2,175	10.1	10.3
			Average annual growth rates (%)			
1970-73	9.3	7.6	260.5	12.1		
1973-75	(-9.3)	(-21.4)	194.5	3.7		
1975-76	12.9	(-20.2)	(-57.1)	(-3.1)		

p Based on MED preliminary estimates.

As expected, national production figures mirror British Columbia's performance with a substantial growth until 1973, followed by sharp declines in 1974-75 leading to an "apparent" recovery in 1976. However, the divergence of production performance from domestic consumption and export trends provides an area of major concern. During the period of production declines, Canadian demand for softwood plywood products remained extremely strong and actually increased 7.4 percent from 1973 levels.

Domestic Market Erosion

Import penetration, over 98 percent of which originated from U.S. plywood producers, provides the major explanatory factor. Prior to 1972, imports rarely exceeded two percent of the total Canadian market for softwood plywood products. Since that point, however, a substantial and drastically expansive import market has developed. Reflecting the rapid expansion of domestic demand in the 1972-73 period and the capacity limitations of B.C. producers, imports increased to account for about five percent of total Canadian consumption by 1973. In 1974, imports jumped over 200 percent to capture an 18 percent share of the domestic market at the same time that B.C. producers were experiencing substantial production and employment cutbacks. The year 1975 marked a repeat performance, with imports further expanding to take over 22.8 percent of total Canadian softwood plywood requirements. Preliminary 1976 data indicate that the significance

of the import penetration has decreased, but as is the case for the B.C. industry's production recovery further analysis suggests only a temporary respite (see following sections).

Export Market Erosion

The recent problems of B.C. plywood producers in the Canadian market are compounded by an even poorer export performance. The volume of British Columbia softwood plywood exports experienced a relatively steady and substantial increase through 1973 with exports averaging about 20 percent of total production. However, exports have dropped drastically after this record production year. Annual decreases approximating 20 percent of the previous year's export shipments have been the recent performance trend, a trend which has not reversed with the industry's apparent 1976 production recovery. U.S. plywood products again have provided the major competition for foreign export markets. The extent and effectiveness of this competitive pressure is detailed in Table 4.

Table 4. Softwood Plywood Trends in North American Export Markets 1970-1976* (all figures: quantity - million sq. ft. 3/8" basis; except market share statistics - %)

Period	U.S. Exports	B.C. Exports	Total	Market Share U.S.	Market Share B.C.
1970	113.2	400.0	513.2	22.1	77.9
1971	85.4	362.7	448.1	19.1	80.9
1972	169.5	447.0	616.5	27.5	72.5
1973	366.2	487.9	854.1	42.9	57.1
1974	301.7	363.2	664.9	45.4	54.6
1975	463.6	281.5	745.1	62.2	37.8
1976P	520.8	225.0	745.8	69.8	30.2

* Softwood plywood trade flows (between U.S. and Canada) are netted out of North American export market calculations.

p Based on preliminary MED estimates.

From 1970, B.C. softwood plywood producers have gone from a position of supplying roughly 80 percent of total North American plywood exports to a current market share approximating only 30 percent. This market erosion is separable into three distinct segments. Prior to 1974, B.C. manufacturers registered substantial export growth but, reflecting capacity limitations, did not expand as fast as foreign export demand. The U.S. filled the growing residual market which remained modest (below 200 million square feet) until 1973. In 1973, B.C. capacity limitations intensified in the peak production year, and U.S. producers enjoyed a substantial expansion of exports and market share. Reflecting the effects of a widespread international recession in 1974, both U.S. and B.C. producers suffered export declines, with

B.C. losing a marginal share of the shrinking North American plywood export market. The year 1975 appears as a critical turning point. Despite a general resurgence in export demand, B.C. producers experienced sizable export declines in absolute and market share terms. Preliminary 1976 data indicate a continuation of this trend. Export share losses have been spread over a wide range of individual export markets, with the United Kingdom, Germany, France, the Netherlands and Belgium-Luxemborg leading the decline (see statistical supplement tables S1-S8).

Taken together, the British Columbia plywood industry's domestic market erosion and post-1974 export performance suggest serious competitive problems vis-a-vis U.S. manufacturers. Despite the protection afforded by the 15 percent Canadian tariff, the industry lost over one-fifth of its domestic market in a period of rising demand and abundant provincial supply capabilities. Based on preliminary estimates, 1976 export volumes will be less than half of 1973 levels despite a strong resurgence in foreign demand. The factors underlying the British Columbia softwood plywood industry current employment and production dilemma are discussed in the following sections.

Regional Specifics of Performance Problems

Table 5 outlines B.C. softwood plywood production performance for the coastal and interior regions.

Table 5. Regional Distribution of B.C. Softwood Plywood Production 1970-1976 (production; quantity, million sq.ft. 3/8" basis: annual growth rates, capacity utilization ratios; %)

	Production Volume		Annual Growth Rates Production		Capacity Utilization Ratio	
Period	Coast	Interior	Coast	Interior	Coast	Interior
1970	1,320.7	372.6	-	-	88.0	88.7
1971	1,434.7	435.9	8.6	17.0	94.2	90.1
1972	1,375.4	589.8	(-4.1)	35.3	85.0	90.3
1973	1,484.2	713.2	7.9	20.9	89.1	90.9
1974	1,127.2	704.4	(-24.1)	(-1.2)	69.4	89.7
1975	1,042.1	735.6	(-7.5)	4.4	68.3	93.1
1976P	1,248.9	775.1	19.8	5.4	81.9	96.9

p Based on MED preliminary estimates.

Coastal production registered relatively slow, steady expansion in the 1970-73 period, but fell drastically in 1974-75; capacity utilization plummeted over 20 percent in the two-year span and some plants and production lines were closed or discontinued. Interior producers faced a completely different situation. Both production and capacity expanded rapidly in the 1970-73 time frame. After a slight decline in 1974, production volumes resumed an expansive trend, but appear to have been constrained by capacity limitations. The ratio of production to capacity exceeded 93 percent in 1975, further

expanding to an extreme level of 97 percent in 1976 (Note: long-term studies of North American softwood plywood production suggest that the optimal capacity utilization ratio approximates 90 percent.)[1] In short, the B.C. softwood plywood's recent production and employment losses are almost entirely attributable to the coastal segments of the industry. Demand for interior production has remained strong and expansive, to a point where it now exceeds the supply capabilities of the region.

Causal Factors - General Overview

Three causal factors have been isolated as precipitating the B.C. industry's current production, employment and competitive dilemma. First, there is a discernible shift in market demand factors affecting both domestic and export consumption. This has tended to produce a preference for a type and quality of plywood output mix not currently produced in the province and not strictly compatible with existing British Columbia production facilities. Secondly, and related to output mix differences, British Columbia producers are operating at a competitive cost disadvantage vis-a-vis U.S.

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1. American Plywood Association, "Long Term Plywood Demand," E-18, March 1975.

manufacturers in most major plywood production cost components. Finally, the combination of U.S. capacity expansions and shortfalls in U.S. domestic demand levels have created an extreme excess capacity situation for U.S. producers. This situation has induced substantial and long-term U.S. plywood export development efforts.

Market Demand Trends

There are two major types and qualities of plywood produced in Canada and the U.S. Sheathing plywoods are used mainly in structural and construction applications, while sanded plywoods are used in applications demanding a smooth surface. Each country has developed its own grade classifications which are based on the physical characteristics of the wood, veneer and glue from which plywood is manufactured. Two basic qualities are produced: exterior and interior. Exterior quality plywoods are classed as being fully waterproof and have high resistance to conditions of humidity and wetness. Phenol-formaldehyde glues are employed as bonding agents. Interior plywoods are manufactured using lower quality veneers and/or lower quality glues (urea-formaldehydes) and are classed as water resistant rather than waterproof.

A review of British Columbia and U.S. shipment data reveals a pronounced shift in market demand towards sheathing plywood types (Table 6).

Table 6. Proportion North American Softwood Plywood Output Mix - By Type. (All figures % of total quantity shipped)

	British Columbia			United States		
Period	Sanded	Sheathing	Speci-ality*	Sanded	Sheathing	Speci-ality*
1970	33.4	60.2	4.0	33.2	61.1	5.7
1971	35.8	60.4	4.0	27.3	65.5	7.2
1972	35.6	65.5	4.0	23.2	68.4	8.4
1973	30.5	65.5	4.0	21.5	69.7	8.8
1974	28.1	67.9	4.0	21.9	69.0	9.1
1975	23.9	72.1	4.0	20.1	70.9	9.0
1976P	19.8	76.2	4.0	17.2	70.1	12.7

* Speciality plywoods are manufactured for specific purposes and may include both types. Data on B.C. speciality production is not collected, but industry officials indicate a small proportion averaging 4.0 percent

p. Based on preliminary MED estimates.

The shipment patterns in both areas are roughly comparable. The share of sheathing production has steadily increased since 1970 and currently represents 70.1 percent of U.S. output and over three-fourths of B.C. shipments. Regionally, British Columbia coast and United States douglas fir producers manufacture a full range of products in each type classification. Interior and southern pine tend to specialize in sheathing manufacture only, providing a partial explanation of the shifts in regional concentrations of production detailed in Tables 1 and 5.

The major difference in United States and British Columbia plywood output mixes relates to the quality classifi-

cations. British Columbian mills do not manufacture interior grade products. In contrast, a substantial portion of total U.S. production is of interior quality (see Table 7).

Table 7. U.S. Softwood Plywood Production Trends - By Quality 1970-1976. (All figures proportion of type produced; %)

	Sanded Products		Sheathing Products		
Period	Interior	Exterior	Interior	CDX-Sub*	Exterior
1970	46.0	54.0	97.0	57.1	3.0
1971	44.7	55.3	98.0	59.3	2.0
1972	42.0	58.0	97.2	59.3	2.8
1973	33.8	66.2	97.5	61.5	2.5
1974	36.0	64.0	97.5	67.2	2.5
1975	35.2	64.8	96.8	69.8	3.2
1976P	30.1	69.9	96.9	70.0	3.1

* CDX leading sub grade of interior sheathing production.
p. Based on preliminary MED estimates.

Over 30 percent of U.S. sanded production and almost 97 percent of sheathing output is of a quality not produced in British Columbia. Exterior grades represent a growing proportion of U.S. sanded output, but the total market trends (i.e. Table 6) suggest a growing market preference for interior products. The bulk of U.S. sheathing production, which has registered a substantial and continually increasing proportion of total shipments, is of interior quality with the CDX sub-component registering a sizable increase in relative importance. It should be further noted that CDX, although formally classified as an interior quality product, is manufactured with an exterior glue type making it a close substitute for exterior

sheathing applications.

The softwood plywood industry has traditionally considered itself a high quality producer, and often cites requirements for such production being dictated by domestic climatic conditions and building codes and standards. While the industry is to some degree committed to retaining this image the fact remains that:

1. Large segments of Canadian end use demand do not necessarily require this high a standard; and
2. This fact is reflected in large and increasing imports of interior quality plywoods.

The production of high quality plywoods has primarily been a response to two general factors. First, the National Building Code of Canada requires that all plywoods used for structural, load-bearing and exposed purposes in residential and some nonresidential construction adhere to grade standards which preclude interior plywoods. As detailed in Table 8 these requirements affect between 30 and 40 percent of total Canadian end-use demand for softwood plywood products.

Table 8. Softwood Plywood Consumption by End-Use Market - Canada, U.S. (All figures percent of total consumption)

Area	Residential Construction	Nonresidential Construction	Industrial	Retail	Farm & Other	Total
Canada	27.5	14.5	20.0	25.0	13.0	100
U.S.	50.4	10.1	14.7	16.0	8.8	100

The remaining 60 to 70 percent of Canadian end-use demand does not face such restrictions, but higher grade exterior plywoods appear to have been employed, at least prior to 1973, because of a lack of competitive substitutes. U.S. building standards are not as restrictive and interior sheathing grades have satisfied the much larger absolute and relative residential construction demand in that country.

The second general factor explaining why B.C. manufacturers have shunned the production of interior grade plywoods is related to wood quality differences and production facility constraints. Historically, the B.C. timber resource, particularly in the coastal region, has yielded a percentage of "D" grade veneer which is much less than similar actual and potential U.S. availability. On the basis of pre-1973 market demand trends (which from B.C.'s perspective were not affected by the availability of lower quality substitutes), provincial producers found it more profitable to maximize the quality of their output mix. This was achieved by patching and splicing the relatively limited amount of off-grade veneers to conform to exterior standards. Even with declining veneer qualities, resulting from the near exhaustion of the first harvest timber base, expansion of the B.C. output mix to include interior grades has been discouraged because of incompatibilities with existing production facilities. Transformation of existing production processes to accommodate a more diversified output mix entail functional complications for the relatively small

B.C. mills which are already suffering from diseconomies of scale compared to the larger unit U.S. producers. Reflecting the industry's performance problems and the relatively poor provincial investment climate since 1973, major new capital expenditures supporting the development of an interior quality product line have apparently not been considered.

The combination of aforementioned factors have left B.C. manufacturers in a position of supplying a product which generally exceeds the quality requirements of major segments of market demand. The effects of this excess quality factor on the industry's cost competitiveness is examined in the following subsection, but is immediately relevant in terms of the erosion of the traditional B.C. domestic and export markets. Tables 9 and 10 present price comparisons of key plywood products originating in the British Columbia coast and the U.S. douglas fir region for the 1970-76 period (as detailed below, U.S. southern pine and B.C. interior outputs are not viewed as directly susceptible to international competitive forces). The data have been adjusted for the effects of tariffs, taxes and exchange rates to produce two sets of comparable price figures: Canadian domestic market prices, excluding transportation costs (Table 9), and export market prices, excluding transportation charges (Table 10).

Table 9. Comparable Softwood Plywood Domestic Market Prices - 1970-76* (Canadian dollars per thous.sq.ft.3/8" basis)

	Exterior Sanded AC Grade		Exterior Sheathing CC Grade		Interior Sheathing CDX Grade	
Period	B.C.	U.S.	B.C.	U.S.	B.C.	U.S.
1970	103.23	102.12	79.92	77.87	-	67.65
1971	120.99	114.89	94.35	88.09	-	80.42
1972	147.63	142.97	119.88	117.44	-	114.89
1973	222.37	178.73	144.39	141.70	-	123.83
1974	211.09	204.74	131.94	119.84	-	112.35
1975	272.42	221.11	148.25	144.94	-	131.43
1976	259.54	251.16	164.81	167.84	-	152.14

Percentage Price Differential (B.C. Coast Price Disadvantage)

	Sanded AC Grade	Sheathing CC Grade	B.C. Sheathing CC/U.S. CDX
1970-73	8.5	3.4	14.1
1974-75	16.1	6.2	15.1
1976	3.1	(-1.8)	8.3

* B.C. prices FOB Vancouver, U.S. prices FOB Portland, average June each period - include adjustment for taxes, tariffs, exchange rates, and mill discounts.

Table 10. Comparable Softwood Plywood Export Market Prices - 1970-76* (Canadian dollars per thous.sq.ft.3/8" basis)

	Exterior Sanded AC Grade		Exterior Sheathing CC Grade		Interior Sheathing CDX Grade	
Period	B.C.	U.S.	B.C.	U.S.	B.C.	U.S.
1970	93.00	80.00	72.00	61.00	-	53.00
1971	109.00	90.00	85.00	69.00	-	63.00
1972	133.00	112.00	108.00	92.00	-	90.00
1973	200.33	140.01	130.08	111.01	-	97.01
1974	190.17	160.39	118.86	93.89	-	88.02
1975	259.45	183.11	141.19	120.04	-	108.85
1976	247.18	208.00	156.96	139.00	-	126.00

Percentage Price Differential (B.C. Coast Price Disadvantage)

	Sanded AC Grade	Sheathing CC Grade	B.C. Sheathing CC/U.S. CDX
1970-73	24.8	18.9	31.2
1974-75	30.1	22.1	32.3
1976	18.8	12.9	24.6

* B.C. prices FOB Vancouver, U.S. prices FOB Portland, average June each period - include adjustments for taxes, tariffs, exchange rates, and mill discounts.

With the exception of a slight price advantage in 1976 CC exterior sheathing, B.C. coast producers have operated under a Canadian domestic market price disadvantage throughout the 1970-1976 period. Coinciding with the B.C. production and employment declines, the price gaps for both types of product widened considerably in 1974-75, before retightening in 1976. Significantly, a large price differential between B.C. exterior sheathing and U.S. CDX sheathing persisted throughout the 1970-76 study period. Spot checks of 1974-75 import flows indicate that roughly 70 percent of softwood plywood imports were of a type not produced in Canada (mostly CDX). Taken together, the factors suggest that Canadian plywood consumers are increasingly finding interior quality plywoods an acceptable substitute for domestically produced exterior sheathing, and said imported substitutes can be supplied at a substantial price advantage.

Export price comparisons are even more discouraging, with B.C. producers operating at a major disadvantage in all three categories. Given the limited U.S. sanded and exterior sheathing production (Table 7), however, the major variable related to B.C. export market erosions is again the apparent substitutability of the CDX type product for exterior sheathings. In short, B.C. plywood producers face the dilemma of producing a high quality, high price output mix at a time

when market preferences are shifting towards lower quality, lower price consumption patterns.

The discussion of shifting plywood market trends is not complete without reference to potential nonplywood product substitutes. As detailed in Table 11, portions of the total Canadian domestic panelboard market have been captured by wood composite panels in the form of waferboard.

Table 11. Total Canadian Panelboard Market Trends* 1970-76 (All figures: quantities, million square feet 3/8" basis)

	Domestic Softwood Plywood Shipments	Softwood Plywood Imports	Domestic Waferboard Shipments	Total Canadian Panelboard Market
1970	1,515.5	11.9	62.0	1,589.4
1971	1,736.9	15.4	100.0	1,852.3
1972	1,823.1	92.8	110.0	2,025.9
1973	1,978.4	104.8	140.0	2,223.2
1974	1,686.2	370.1	175.0	2,231.3
1975	1,732.0	512.5	247.0	2,491.5
1976P	1,955.0	220.0	284.0	2,459.0
	(Percent of total Canadian panelboard consumption)			
1970	95.4	0.7	3.9	100
1971	93.8	0.8	5.4	100
1972	90.0	4.6	5.4	100
1973	89.0	4.7	6.3	100
1974	75.6	16.6	7.8	100
1975	69.5	20.6	9.9	100
1976P	79.5	8.9	11.6	100

* Does not include urea particleboard, hardboard or hardwood plywoods.
p. Based on preliminary MED estimates.

Waferboards are exterior grade panels made primarily from wood flakes or wafers and bonded with phenolic resins. Current

Canadian production capacity (none of which is located in B.C.) is estimated at 570 million square feet 3/8" basis, implying a substantial overcapacity situation based on current demand levels. Waferboard provides at best an imperfect softwood plywood substitute. Major penetrations into the panelboard market have been confined to demand for utility panels (i.e. construction of recreational homes, beach houses, ski cabins, etc., not subject to building codes) and various farm uses. The product has recently appeared in the residential construction market, but appears to have limited applications. Waferboard currently must be 1/16 to 1/8 inch thicker than plywood in load-bearing uses, resulting in greater panel weights and a somewhat higher average price than similarly suitable sheathing plywood. A distinct transportation cost disadvantage also retards its penetration of certain markets.

Although nonplywood substitutes have had an impact on traditional softwood plywood uses, they appear to be of secondary importance in explaining the deterioration of the B.C. industry's domestic and export performance. The key market trend factor remains the quality differential between the output mixes of U.S. and B.C. softwood plywood producers. Factors underlying the province's disadvantaged cost and price performance are outlined below.

Productivity and Cost Comparisons: General Overview

Because of the differences in output mix, cost and productivity comparisons between U.S. and B.C. plywood producers (as well as regional comparisons within each producing area) are difficult. Price Waterhouse & Associates, under contract to the Council of Forest Industries, have attempted to overcome the inherent data problems by estimating production costs for each of the major producing regions on the basis of a hypothetically similar output mix. Estimates for each region have been developed for 1972, with additional 1973-75 comparisons for the B.C. coast, B.C. interior and U.S. douglas fir regions. These estimates provide, at best, an imperfect basis for determining the competitive positions of plywood manufacturers in each region; however, the patterns of individual cost components do provide valuable insight on the nature and extent of the B.C. industry's performance problems. This information, coupled with other independent data sources, suggest that B.C. plywood manufacturers, specifically coastal producers, operate at an absolute disadvantage in all major cost components, and that this disadvantage has substantially worsened in recent years.

Before isolating recent cost developments on a regional basis, it is constructive to review the total industry's productivity performance prior to the 1974 British Columbia production and employment crisis. Table 12 details output, labour and productivity indexes in the 1966-73 period for the

total veneer and plywood industry in both British Columbia and the United States.

Table 12. Indexes of Productivity, Veneer and Plywood Industry 1966-1973*

Period	Index: Real Value Output (1966=100)	Index Manhours (1966=100)	Index: Real Output/Manhour (1966=100)	Value Added per Manhour ($)	Avg. Hourly Earnings ($)
		British Columbia			
1966	100	100	100	4.75	2.69
1967	106	99	107	5.58	2.92
1968	113	100	113	6.10	3.11
1969	111	96	116	7.00	3.34
1970	106	88	120	5.62	3.51
1971	115	98	117	7.11	3.89
1972	124	101	123	9.02	4.27
1973	132	110	120	9.82	4.74
Average Annual Growth Rate					
	4.0	1.4	2.7	10.9	8.4
		United States			
1966	100	100	100	4.66	2.42
1967	103	93	111	4.90	2.54
1968	110	93	118	6.57	2.72
1969	105	90	117	6.47	2.90
1970	106	83	128	5.93	3.12
1971	123	86	143	7.38	3.32
1972	137	88	156	9.71	3.49
1973	131	89	147	10.89	3.73
Average Annual Growth Rate					
	4.0	(-1.8)	5.7	12.9	6.4

* Indexes are not directly comparable between B.C. and U.S., but do allow year-to-year growth rate comparisons between U.S. and B.C.

Average annual growth in real value of output was identical for both major producing areas, but performance similarities cease at that point. U.S. producers achieved their output expansions while reducing their net labour requirements at a rate

approximating two percent per annum. Similar rates of output growth in British Columbia required an increase in labour inputs amounting to 1.4 percent yearly. This resulted in a sizable difference in productivity performance, as measured by output per man hour, with U.S. productivity gains exceeding B.C.'s increases by an average rate of three percent. During the same period, B.C. veneer and plywood industry wage increases outpaced the U.S. experience by an average annual rate of two percent, suggesting a gradual development of potential competitive problems prior to the dramatic domestic and export market erosions experienced by B.C. producers in 1974-75.

Table 13 presents the Price Waterhouse regionalized comparative production cost estimates for 1972.

Table 13. Average Costs Associated with Softwood Plywood Production, By Region 1972* (All figures dollars per thousand square feet 3/8" basis)

Cost Component	Region			
	B.C. Coast	B.C. Interior	U.S. Douglas Fir	U.S. Southern Pine
Wood**	35.16	21.65	28.05	30.07
Direct Labour	28.40	17.97	23.09	12.21
Overhead/Admin.	24.60	26.26	21.07	27.25
Glue	3.07	3.27	2.84	4.24
Total Cost	91.23	69.15	75.68	74.40

* Interior and southern pine estimates based on 100% sheathing production; coast and douglas fir based on sanded, sheathing mix.

** Based on actual wood costs; do not reflect effects of independent log market.

Note: Tables 13-17 U.S. data in U.S. dollars, Canadian data in Canadian dollars. Exchange rate adjustments do not alter the magnitudes and trends to any significant extent.

Cost comparisons between the B.C. coast and U.S. douglas fir regions provide the major areas of concern. B.C. interior producers displayed the lowest costs in the 1972 comparison, with a pronounced advantage in the wood component reflecting favourable logging conditions and the lower quality (and hence less expensive) spruce and pine logs used in the manufacture of sheathing plywoods. The region's production and capacity utilization performance in the 1972-76 period (Table 5) suggests no substantial competitive cost of productivity problems. U.S. southern pine producers appear in a similarly strong competitive position. The region enjoys appreciably lower average labour costs, and additionally has a decided transportation cost advantage to the large eastern and central U.S. plywood market. This demand exceeds the region's output capabilities, and southern pine production is not viewed as directly competing for traditional B.C. domestic or export markets.

Cost and productivity comparisons are, consequently, properly focused on the coast and douglas fir regions. Both areas produce a full range of sheathing and sanded products, with the major differential relating to the aforementioned U.S. production of interior quality products. Based on the 1972 comparisons, douglas fir producers displayed a decided cost advantage in all major components.

Wood and Glue Costs

In terms of material inputs, the U.S. region enjoyed

a 25.3 percent actual wood cost advantage and an 8.1 percent advantage in the glue component. Data for 1973-75 suggest some narrowing in the wood cost differential. Table 14 presents cost comparisons for the later period with wood costs expressed in market rather than actual cost terms.[1]

Table 14. Average Costs Associated with Softwood Plywood Production - Wood and Glue Components 1972-76 (Costs: dollars per thousand square feet 3/8" basis)

	B.C. Coast Region		U.S. Douglas Fir Region	
Period	Wood	Glue	Wood	Glue
1972	50.91	3.07	37.76	2.84
1973	64.90	3.39	48.74	3.28
1974	69.61	7.09	53.10	7.01
1975	63.37	8.48	56.66	7.21
1976	69.17	8.76	n/a	n/a
	(Annual Percentage Cost Increases)			
1973	27.5	10.4	29.1	15.5
1974	7.3	109.0	8.9	113.7
1975	(-9.0)	19.6	6.7	2.9
1976	9.2	3.3	n/a	n/a
Annual Average Growth 1972-75 (%)				
	8.2	58.7	16.7	51.3

(Percentage Cost Differential; B.C. Coast Disadvantage)

	Wood	Glue
1972	34.8	8.1
1973	33.2	3.4
1974	31.1	1.1
1975	11.8	17.6

1. Price Waterhouse 1972 comparisons included the wood component on an actual and market price basis; subsequent douglas fir data is provided on a market basis only, but is viewed as accurately reflecting actual cost trends.

Higher B.C. coastal wood costs reflect the increasing scarcity of high quality veneer peelers, higher logging costs, the effect of open market log purchase, and the B.C. stumpage and tenure system. Major portions of the douglas fir timber resource are privately owned, exempting segments of the wood input requirements from stumpage charges. The U.S. region's timber species and quality mix is also generally better suited to the output mix of douglas fir plywood manufacturers. The narrowing of the wood cost differential, however, appears mainly attributable to differences in stumpage charges. Douglas fir producers have begun to encounter wood supply constraints, forcing an increasing dependence on public timber which is subject to these charges. U.S. stumpage in the 1973-75 period greatly exceeded British Columbia assessments, which were reduced to near minimum levels as a result of depressed lumber market conditions. (Average stumpage 1973-75: U.S. - $70.68/cunit; B.C. - $9.56/cunit.) Consequently, the wood cost trend, while encouraging, appears largely to have spent itself as stumpage differentials are expected to narrow rather than widen in B.C.'s favour. Glue costs increased in both regions, with the douglas fir producers maintaining a substantial advantage related to lower bonding requirements on interior grade products.

Direct Labour Costs

Direct labour costs appear as a major factor contributing to the competitive disadvantage of B.C. coastal plywood producers. The Price Waterhouse estimates reveal a 23 percent differential compared to 1972 douglas fir labour

costs and, as outlined in Table 15, the gap widened further in the 1973-75 period.

Table 15. Average Costs Associated with Softwood Plywood Production - Direct Labour Component 1972-76. (Costs: dollars per thousand square feet 3/8" basis.)

	B.C. Coast Region			U.S. Douglas Fir Region		
	Total Labour	Veneer Patching Subtotal	Panel Patching Subtotal	Total Labour	Veneer Patching Subtotal	Panel Patching Subtotal
1972	28.40	3.75	2.28	23.09	1.87	1.43
1973	32.61	3.83	2.09	25.28	1.92	1.36
1974	38.88	4.59	2.58	27.27	2.18	1.58
1975	45.46	5.35	3.05	30.63	2.67	1.83
1976	49.11	4.62	3.40	n/a	n/a	n/a
	(Annual Percentage Cost Increases)					
1973	14.8	2.1	(-8.0)	9.5	2.7	(-5.0)
1974	19.2	19.8	23.4	8.3	13.5	16.2
1975	16.9	16.6	18.2	11.9	22.5	15.8
1976	8.0	(-13.6)	11.5	n/a	n/a	n/a
Average Annual Growth (1972-75)						
	20.0	14.2	11.3	10.9	14.3	9.3

(Percentage Cost Differential; B.C. Coast Disadvantage)

	Total Labour	Veneer Patching	Panel Patching
1972	23.0	100.5	59.5
1973	29.0	99.5	53.7
1974	42.1	110.6	63.3
1975	48.4	100.4	66.7

The direct labour comparisons reflect differences in average hourly earnings, fringe benefits, shift differentials, overtime pay and general productivity factors. Based on the veneer and panel patching labour cost subcomponents, a portion of the B.C. industry's labour cost disadvantage appears directly attributable

to the higher quality of the coastal output mix. Veneer patching costs run about 100 percent higher in the B.C. region, and panel upgradings entail labour costs which are 2/3rds higher than similar douglas fir charges.

It is evident from Table 16 that the major factor explaining the labour cost differential is related to wage escalations.

Table 16. Average Hourly Earnings - Veneer and Plywood Mills 1970-1976* (All figures: dollars per hour.)

Period	B.C. Coast Region Straight Time (ST)	B.C. Coast Region ST + Overtime	U.S. Douglas Fir Region Straight Time (ST)	U.S. Douglas Fir Region ST + Overtime
1970	3.51	3.96	3.63	3.75
1971	3.89	4.40	3.86	4.02
1972	4.27	4.89	4.10	4.29
1973	4.74	5.31	4.38	4.57
1974	5.42	6.18	4.80	4.93
1975	6.34	7.28	5.33	5.51
1976**	7.15	8.20	5.75	5.98
(Average Annual Wage Increases; Percent)				
1970-73	11.7	11.4	6.9	7.3
1973-75	16.9	18.6	10.8	10.3
1975-76	12.6	12.6	7.9	8.5

(Earnings Differental; B.C. Coast Disadvantage; $ per hour)

	Straight Time	ST + Overtime
1970	(-.12)	.20
1971	.03	.38
1972	.17	.60
1973	.36	.74
1974	.65	1.25
1975	1.02	1.77
1976	1.40	2.23

* Includes vacation pay, fringes, etc.

** Based on data through 3rd quarter 1976

B.C. coast wage increases have significantly outpaced the douglas fir performance since 1970, with the most rapid accelerations occurring in the 1973-76 period. B.C. straight-time rates were actually $.12 per hour lower in 1970, but currently exceed hourly douglas fir wages by $1.40. The comparison of straight time plus overtime rates is even worse, with the 1970 $.20 differential expanding to a dramatic $2.23 in 1976. These trends, coupled with lower B.C. labour productivity performance (Table 12), indicate that the province's plywood producers operate at a substantial, and apparently continually increasing, labour cost disadvantage.

Mill Overhead and Administration Costs

Mill overhead and administration costs constitute the final major cost component. Table 17 includes the comparative performance of the total category, along with the cost trends of key subcomponents.

Table 17. Average Costs Associated with Softwood Plywood Production - Mill Overhead and Administration Component 1972-76. (Costs: dollars per thousand square feet 3/8" basis.)

Period	Total Overhead & Administration	Property Tax Sub	Maintenance Sub	Power/ Fuel Sub	Corporate Overhead + Int. Sub
			(B.C. Coast Region Costs; dollars)		
1972	24.60	.75	5.60	2.24	4.97
1973	29.39	.90	7.46	2.50	4.88
1974	39.13	1.35	9.64	3.71	6.80
1975	45.23	1.88	10.47	5.03	7.57
1976	43.56	1.90	10.94	4.99	5.98
			(Annual Percentage Cost Increases)		
1973	19.5	20.0	33.2	11.6	(-1.8)
1974	33.1	50.0	29.2	48.4	39.3
1975	15.6	39.3	8.6	35.6	11.3
1976	(-3.7)	1.1	4.5	(-1.0)	(-21.0)
Annual Average 1972-75	28.0	50.2	29.0	41.5	17.4
			(U.S. Douglas Fir Region Costs; dollars)		
1972	21.70	.73	4.68	1.86	3.36
1973	24.30	.71	5.24	2.12	3.83
1974	30.46	.86	5.46	2.95	5.06
1975	32.97	1.12	6.13	3.79	5.49
1976	n/a	n/a	n/a	n/a	n/a
			(Annual Percentage Cost Increases)		
1973	12.0	(-2.7)	12.0	14.0	16.3
1974	25.3	21.1	4.2	39.2	23.0
1975	8.2	30.2	12.3	28.5	6.3
Annual Average 1972-75	17.3	17.8	10.3	34.6	17.4
			(Percentage Cost Differential; B.C. Coast Cost Disadvantage)		
1972	13.4	2.8	19.7	20.4	47.3
1973	20.9	26.8	42.4	17.9	27.4
1974	28.5	57.0	76.6	25.8	34.4
1975	37.2	67.9	70.8	32.7	37.9

The total administrative and overhead cost differential widened considerably in the 1972-75 period, with the relative B.C. coast cost disadvantage increasing from 13.4 to 37.2 percent. A

multiplicity of interrelated variables is involved, but the age and size limitations of B.C. coastal mills appear as general primary causal factors. The magnitude of U.S. market demand has fostered the development of larger scale mills enabling product specialization and the exploitation of related economies of scale to a much greater extent than has occurred in the B.C. coastal region. Size of plants, coupled with generally lower U.S. property tax and fuel and electricity charges, provides partial explanation of the superior douglas fir performance in the tax and power cost subcomponents. The older age of B.C. coast plant and equipment, coupled with operating inefficiencies related to the diminishing size and quality of peeler logs, appears directly related to B.C.'s disadvantageous maintenance cost trends. B.C.'s comparative position in the corporate overhead and interest subcomponent did improve in the 1972-75 period, and registered a sizable absolute cost reduction in 1976. The recent narrowing of U.S.-Canadian interest rate differential provides one of the few encouraging signs in the otherwise dismal overhead and administration cost comparisons.

In total, B.C. coastal softwood plywood manufacturers appear at a serious competitive disadvantage vis-a-vis U.S. douglas fir producers. All factors mentioned above have contributed to this situation, but two in particular demand special consideration. First, the pronounced orientation of B.C. manufacturers towards the production of high quality

plywoods has adversely affected the region's comparative position in all major cost components. The quality of the output mix appears directly related to higher wood and glue costs, as well as a higher direct labour cost associated with veneer and panel patching requirements. The area's timber resource is providing a smaller and lower quality log supply which is becoming increasingly incompatible with existing high quality production techniques (a factor which has increased maintenance costs in the overhead and administration component). Production of a full line of high quality plywoods also appears to have prevented product specialization and the exploitation of economies of scale in the coastal region. The second special consideration relates directly to labour costs. B.C. wage increases have substantially exceeded the douglas fir region's labour compensation patterns, completely disrupting the competitive relationships of the late 1960's and early 1970's. If B.C. coastal mills hope to regain cost competitiveness with U.S. producers, reapportionment of the industry's output mix and realignment of labour compensation patterns are clearly in order.

U.S. Excess Capacity and Export Capabilities

The magnitudes of B.C. coastal producer's price and cost disadvantages do not fully explain the industry's recent production and employment declines. As detailed in the preceding discussion, the factors underlying this adverse

competitive situation were clearly evident prior to the substantial domestic and export market erosions of 1974-75. Prior to 1973, U.S. plywood manufacturers appeared to have been indifferent, or perhaps even adversely inclined, to activity pursuing export opportunities. This is revealed in Table 18.

Table 18. Total U.S. Softwood Plywood Production Trends 1969-76. (All data in quantities; million square feet 3/8" basis except ratios, %)

Period	Total Shipments	Exports	Domestic Consumption	Ratio Exports / Shipments	Capacity Utilization Ratio
1969	13,332	239.1	13,092.9	1.8	81.4
1970	14,067	124.5	13,942.5	0.9	79.9
1971	16,674	100.0	16,574.0	0.6	86.2
1972	18,447	261.6	18.185.4	1.4	90.2
1973	18,308	470.7	17,837.3	2.6	86.1
1974	15,725	670.7	15,054.3	4.3	76.6
1975	15,975	975.5	14,999.5	6.1	76.5
1976	18,527	740.0	17,787.0	4.0	88.5

* U.S. softwood plywood imports were negligible throughout the 1969-76 period.

Prior to 1973, U.S. softwood plywood exports never exceeded two percent of total production. Exports actually declined from 1969 to 1970 despite a sizable overcapacity situation related to the sharp downturn in U.S. housing starts during the 1969-70 recession. However, the 1974-75 recessionary period precipitated a decidedly different export performance pattern.

Reflecting a virtual collapse in residential construction activity, U.S. domestic demand for softwood plywood products dropped dramatically, with 1975 consumption falling 17.5 percent below the peak levels of 1972. U.S. producers again encountered an extreme overcapacity situation with the industry's production-to-capacity ratio dropping by 15.2 percent. U.S. producers responded to this weakening 1973-75 domestic demand by expanding exports at an average annual rate approximating 91 percent. Exports represented 4.3 percent of total U.S. softwood plywood shipments in 1974, further expanding to account for 6.1 percent of shipments in 1975. As detailed in previous sections, this U.S. export growth resulted in direct and sizable cuts in the B.C. manufacturers' share of the Canadian and export markets.

Given the fact that U.S. producers appear to have enjoyed a substantial price advantage vis-a-vis B.C. coastal manufacturers as early as 1970 (Table 10), the relatively slow development of the U.S. softwood plywood export presence is a curious phenomenon. The explanation seems related to the historic domestic orientation of the U.S. industry, and a basic U.S. unawareness or misconception of shifting forces of comparative advantage. Prior to the late 1960's Canadian manufacturers in general, and B.C. veneer and plywood producers in particular, enjoyed lower wage demands than comparable U.S. industries. During this period the other comparative factors (i.e. market demand trends, compatibility of B.C. timber resources with

provincial plywood production facilities, etc.) also tended to operate in favour of B.C. producers. Consequently, in the early 1960's the U.S. industry was viewed at a competitive disadvantage, a factor which induced the United States to seek and achieve an exception to tariff cuts on softwood plywood products at the 1965 Kennedy Round of GATT (current U.S. tariffs on softwood plywood are 20 percent ad valorem, 5 percent higher than similar Canadian duties).

This protection effectively guaranteed the large and rapidly expanding U.S. end use market for domestic producers from 1965 onward. The magnitude of U.S. demand in 1965-70 induced the establishment of southern pine output capacity and encouraged production rationalization and expansion, including the exploitation of scale economies, in the douglas fir region. The rate of growth of U.S. plywood demand, plus pre-1965 notions of international noncompetitiveness, appear to have fostered a domestic market preoccupation on the part of U.S. producers which precluded active pursuit of export opportunities prior to 1973. In the 1965-69 period, capacity expansions barely kept pace with domestic demand growth, and the downturn of 1969-70 appears to have been conceived as a temporary setback, not justifying extended long-term export development efforts.

The strong resurgence of U.S. demand in the 1971 to mid-1973 period seemed to confirm this notion and precipitated a preconception, shared by the entire U.S. forest sector, that the 2.4 million housing starts achieved in 1972 marked a new

plateau in continually expanding U.S. wood product demand levels However, the length and magnitude of the mid-1973-75 recession completely shattered this preconception. Faced with serious production declines, a pronounced overcapacity situation and greatly moderated future domestic demand expectations, U.S. plywood producers turned to the export markets enjoying substantial success at the expense of British Columbia manufacturers.

On the surface, 1976 data trends can be viewed as encouraging for B.C. coastal plywood producers. The British Columbia industry appears in the midst of a production and employment recovery (Table 2) and, as revealed in Table 18, total 1976 U.S. softwood plywood exports are estimated to fall 24 percent short of 1975 levels. However, closer analysis provides little cause for optimism. Total U.S. export declines are solely attributable to Canadian-bound shipments which have fallen some 57.1 percent from 1975 levels. U.S. exports to the rest of the world have expanded by 12.3 percent, continuing the erosion of traditional B.C. foreign markets.

The recent exit of U.S. exports from the Canadian domestic market are a function of two interrelated variables: current U.S. capacity limitations and the 15 percent Canadian tariff. In 1976, U.S. domestic softwood plywood demand jumped by 18.6 percent, causing the U.S. industry's production-to-capacity ratio to rebound to 88.6 percent approximating the optimal ratio of 90 percent. The U.S. industry faced sufficient demand to meet its optimal output requirements, and

consequently appears to have logically foregone portions of the 15 percent penalty on profit margins embodied in the Canadian tariff. (Softwood plywood duties in most major foreign export markets are substantially lower.) Given that the U.S. industry continues to enjoy substantial price and cost advantages vis-a-vis British Columbia producers (Tables 9, 10, 14, 15, 16 and 17), similar logic implies a sizable reentry of U.S. plywoods to the Canadian market if and when the U.S. industry's production-to-capacity ratio declines.

The future production and employment potentials of the B.C. softwood plywood industry are discussed in detail in Section IV. However, given the obvious sensitivity of these potentials to U.S. export capabilities, a short preview is in order. Table 19 presents MED estimates of U.S. softwood plywood supply in excess of domestic demand requirements for the 1977-85 period. The estimates are based on projections of U.S. demand levels and capacities, and assume that the U.S. industry maintains an optimal 90 percent production-to-capacity ratio throughout the forecast period. Potential adjustments in competitive factors are not considered at this point, and the data presented should be viewed only as maximum U.S. export potentials under an extremely favourable set of production conditions.

Table 19. Projections of Maximum U.S. Softwood Plywood Export Availability 1977-85

Period	Export Availability (quantities; billion square feet 3/8" basis) Sanded	Sheathing	Total
1977	0.652	.287	.939
1978	0.641	1.251	1.892
1979	0.598	1.321	1.919
1980	0.610	1.418	2.028
1981	0.647	1.575	2.222
1982	0.657	1.671	2.328
1983	0.677	1.779	2.456
1984	0.724	1.893	2.617
1985	0.703	2.006	2.709

The projections suggest that the U.S. softwood plywood industry will have substantial potential export availability in excess of domestic demand requirements throughout the 1977-85 period. Export availability will be relatively tight in 1977, but remains substantial throughout the remainder of the period. Projected U.S. export availability in 1980-85 exceeds the total volume of current British Columbia production. This information suggests that the British Columbia industry's competitive challenge is not over, but may have just begun.

III. THE BRITISH COLUMBIA SOFTWOOD PLYWOOD INDUSTRY GATT AND COMMERCIAL POLICY CHALLENGE, AND RELATED PROVINCIAL GOVERNMENT POLICY OPTIONS

General Overview

It is evident from Section II that the province's softwood plywood industry faces a substantial competitive problem. Roughly 60 percent of the industry, specifically the coastal region manufacturers, operates at a pronounced disadvantage vis-a-vis U.S. mills in terms of final product prices and total production costs. Major portions of the Canadian domestic and foreign export markets have been lost, and U.S. manufacturers appear to have production capabilities permitting further penetrations in both areas. The coastal segment of the British Columbia industry has recently experienced sizable production and employment declines and is currently operating well below optimum capacity utilization levels. Significantly, this competitive situation may worsen in the near to intermediate time frame as a direct result of tariff reductions stemming from the Tokyo Round of the General Agreement on Tariffs and Trade (GATT). The current level of domestic market protection afforded the industry may be more than halved, substantially increasing the vulnerability of British Columbia manufacturers to import competition.

The associated policy challenge concerning the Government of British Columbia is considerably broader than simple consideration of GATT tariff issues. Improvements in the current competitive position will be achieved by:

a. A complete reorientation of existing production patterns towards the output of a lower quality, lower priced product mix;

b. Rationalization of existing production facilities including: the possible closing of obsolete mills, new investment and capital equipment modernization, as well as possible mergers, acquisitions and inter-industry market allocation arrangements enabling product specialization and the exploitation of potential economies of scale;

c. Moderation of wage escalations, sufficient to substantially narrow the current direct labour cost disadvantage vis-a-vis U.S. producers in the douglas fir region.

It appears unlikely that these objectives can be realized without a coordinated commercial policy effort on behalf of the industry, organized labour and the federal and provincial governments. Without such a program, the British Columbia coastal plywood industry is expected to experience substantial additional long term production and employment losses irrespective of trade and tariff adjustments. Neither tariff reduction nor retention will ensure the necessary competitive adjustments. Tariff retention offers no new incentive to rationalize, whereas tariff reduction may result only in the closing of now marginal mills. Some form of temporary artifical market support will be required if potential

commercial policy initiatives are to be undertaken to improve the coastal industry's competitiveness.

The Government of British Columbia is in a position to influence whether or not softwood plywood tariff protection will be retained at the current round of GATT. Similarly, if a coordinated commercial policy effort is to be undertaken, the Provincial Government is in the best position to provide the first initiatives. Consequently, the direct economic impact of these measures cannot be separated from their broader effects on the total provincial economy or their obvious political implications. The remainder of this section examines key factors to be considered in the policy development process, and specifies a number of options open to the Provincial Government.

General Range and Impact of Potential GATT Tariff Reductions

International agreement on a general GATT tariff reduction formula has not yet been reached, but the concensus is that a solution approximating the U.S. tariff proposal will be accepted. Such an agreement would reduce all existing tariffs above 6.7 percent by 60 percent, dropping the current ad valorem protection afforded British Columbia softwood plywood products from 15 to 6 percent. Foreign tariffs would be dropped by a similar proportion, but further analysis indicates that these reductions would be of a marginal benefit to British Columbia producers. Reductions of tariffs in the

United States (20 percent), Japan (15 percent) and Australia (33-1/3 percent) appear to afford little stimulation to British Columbia softwood plywood export production because of limited demand levels and the U.S. price and cost advantages. Major export potential is associated with the European Economic Community (EEC) which currently maintains an external tariff of 13 percent. However, this protection is already pre-empted by a duty free quota system, which has resulted in virtual free trade in softwood plywood products. Consequently, applying the general GATT tariff reduction to softwood plywoods is viewed as opening the Canadian market to increased import competition while providing little, if any, stimulation for British Columbia exports. It will be demonstrated in Section IV that sizable additional portions of the Canadian domestic market could be lost to U.S. producers in the 1978-85 period. The projected magnitude of this potential import penetration is sufficient to force substantial liquidation of coastal region sheathing operations and drastic reductions in the output of British Columbia sanded plywoods.

Individual countries can exempt specific items from the general tariff reduction formula. However, such actions entail a potentially substantial opportunity cost since they may precipitate compensating exemptions by the other GATT members. GATT procedures do not limit compensating exemptions to similar product groups. Consequently, a Canadian exemption on softwood plywoods could precipitate

foreign responses to the direct detriment of other British Columbia exporters completely unrelated to the veneer and plywood industry.

Factors Affecting Provincial Stance on Softwood Plywood Tariff Reductions:

The Provincial Government has adopted a general GATT policy stance supporting the notion of free trade and calling for the maximum possible reduction of tariffs and NTM's at the current round of GATT, subject to exeptions for a narrowly defined range of "special problem areas" and potential adverse implications on the Province's jurisdictional authority.[1] This position has specifically called for a reorientation of past Canadian trade policy away from protection of the end product manufacturing sector. Past policy is viewed as having fostered domestic economic inefficiencies while precluding foreign tariff concessions on semiprocessed and fabricated product groups. These factors have had a limiting influence on both the province's total economic development and export potential. The province's general GATT position consequently implies that Canada should attempt to minimize tariff exemptions at the current GATT round.

The key question, then, is whether the competitive dilemma of the B.C. softwood plywood industry constitutes a sufficient "special problem" to justify an exception to the

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1. "Significance of GATT to British Columbia," Ministry of Economic Development, December 1976.

province's general GATT policy stance. Such justification is dependent on three general considerations. These are:

I. Whether an industry's importance to the total provincial economy is of a magnitude to precipitate serious adjustment problems in the event of import injury;

II. Whether an industry has sufficient development potential to become internationally competitive (provided that it afforded temporary domestic market protection to facilitate the development process); and/or

III. Whether special circumstances exist which tend to place an industry at a temporary or artificial competitive disadvantage (such as a foreign competitor experiencing a temporary excess supply capability or enjoying special subsidy or industrial incentive assistance).

Elements of each consideration appear applicable to the British Columbia softwood plywood industry.

1. Under the worst set of potential circumstances, the industry can be expected to suffer production and employment losses approximating one million square feet (3/8" basis) and over 3,600 jobs. An additional indirect employment loss approximating 2,900 would also be encountered.

2. With reduced tariff protection, additional sizable

erosions of British Columbia domestic market share could occur in 1978-79. The erosions could, in turn, precipitate liquidations of the British Columbia industry's marginally profitable production facilities, facilities which might prove viable with the declining U.S. excess supply forecast for 1980.

3. DISC, which was established in 1971, provides U.S. producers with a 50 percent long term tax deferral on incomes resulting from export sales. Because of the past domestic orientation of the U.S. plywood manufacturers, DISC has played a limited role in artificially improving their competitive position; however, it could become a significant factor in future export development efforts.

Despite these considerations, the province's decision to support or reject the British Columbia softwood plywood manufacturers' claim to "special problem" status should reflect broader considerations. Based on the analysis of the competitive problem, the Ministry must conclude that tariff retention alone will do little more than postpone an inevitable production and employment adjustment problem. Continued deterioration of the industry's competitive position will result in substantial production and employment dislocations even if current tariff protection is maintained. (Losses are estimated to amount to over 500 million square feet 3/8" basis and 2,800 direct and indirect jobs by 1985.)

Tariff maintenance (in the absence of a commitment to improve the coastal industry's performance) will not prevent an adjustment posture, it will only partially delay it.

Additionally, in the absence of a commitment to improve the coastal industry's competitive performance, provincial efforts to maintain softwood plywood tariff protection could be viewed as:

- the perpetuation of an inefficient and noncompetitive industrial segment;
- a significant compromise in the province's GATT policy stance; and
- the precipitation of compensating tariff exemptions by other GATT members, which could prove disadvantageous to nonrelated British Columbia exporters.

Policy Options - Background

To date, the British Columbia Government has not expressed a position on the issue of a tariff exemption for softwood plywood products. The industry, under the auspices of the Council of Forest Industries, has submitted formal recommendations to the Canadian Trade and Tariff Committee requesting retention of current tariff levels at 15 percent ad valorem. The federal GATT negotiating team has adopted the position that decisions on what exemptions Canada will seek constitute confidential information which will not be revealed prior to the announcement of final international agreements in Geneva.

However, federal officials have informally indicated opposition to the industry's request. Federal arguments maintain that production displacements in the industry are inevitable despite tariff considerations. Federal concern has also been expressed in regard to the compensating foreign tariff exemptions which could be induced. Despite expressed federal reluctance, the Ministry of Economic Development believes that a formally stated provincial position could be an important determinant in the resolution of the softwood plywood tariff exemption issue.

The province's basic policy options involve rejection, support, or a number of intermediate alternatives related to the timing, magnitude and subproduct coverage of the proposed tariff reductions. The province also has the opportunity of supporting each potential option with a statement of desires and intentions regarding the development of commercial policy initiatives to improve the industry's competitive performance. The basic tenets of each option are described below.

Option One: Province Allows Softwood Plywood Products to Fall Under the General Formula

Federal GATT officials appear ill-disposed towards retaining the 15 percent tariff on softwood plywood products. This position is unlikely to change without a strong input from the British Columbia Government. If the Provincial Government concludes that the competitive disadvantage of the coastal softwood plywood producers are not correctable, and

that the production and employment dislocations are irevitable, the province can allow the industry's tariff protection to fall under the general reduction formula.

This option is a probable occurrence given a passive government role. However, other considerations support the formulation and communication of a provincial policy stance, even if nonsupportive of a tariff exemption. Such a policy stance would visibly strengthen the Province's announced free trade commitment, as well as serving to indicate the extent and nature of the industry's problems, establishing the case for GATT related adjustment assistance. This policy stance would also enhance the Province's ability to oppose nonrelated requests for exemptions (i.e. textiles) which may prove harmful to British Columbia's economic development interests.

Option Two: Support for Softwood Plywood Tariff Maintenance, Without a Commercial Policy Commitment

If the Provincial Government concludes that production and employment dislocations stemming from a reduction in softwood plywood tariffs constitute an excessive adjustment problem, or that the softwood plywood industry's importance to the operation of the entire forest sector and/or total British Columbia economy is of a magnitude to justify its continued existence in spite of competitive problems, a tariff exemption may be validly pursued. It should be reemphasized, however, that such a policy stance entails definite economic and political costs. Indirectly, this policy would tend to

support similar protectionist sentiment for the eastern Canadian manufacturing sector, thus continuing the direction and priorities of past national trade policies which have disadvantageously affected British Columbia's economic development.

If the Province chooses to adopt a protectionist stance, several policy variations are also possible. Leading examples include:

1. Replacement of existing tariff schedule with an import quota system;
2. Retention of existing tariff schedule;
3. Reduction of tariffs by 60 percent on a limited range of softwood plywood products only, to include exterior sanded and sheathing panels of grade CXC or higher;
4. Reduction of existing tariff schedule by less than 60 percent;
5. Reduction of tariffs by 60 percent, subject to the upgrading of GATT safeguard provisions to prevent excessive imports during periods of pronounced foreign (i.e. U.S.) excess supply capabilities.

Variations 1-5 are listed in approximate order of declining protectionistic effect. As witnessed by the dramatic domestic market erosions of the 1974-75 period, the 15 percent tariff proved only marginally effective in retarding imports during a period of pronounced U.S. supply capabilities. If the province is to bear the economic and political costs of adopting a protectionist stance, a more effective mechanism may be desirable. Variation 1, which would effectively guarantee a

fixed proportion of the Canadian market to domestic producers, is consequently worthy of consideration. Variation 2 represents the current levels of protection. Variation 3 calls for continued protection for the portions of the British Columbia output mix which are produced at the greatest price and cost disadvantage. This would basically retain the status quo, retarding the import penetration of lower quality interior U.S. plywoods while liberalizing trade in high quality products where British Columbia output is somewhat more competitive. Variation 4 would permit slight to moderate trade liberalization in all product groups, while 5 allows complete liberalization subject to temporary protection during periods of pronounced import vulnerability.

In the absence of a concerted commercial policy effort to alter the British Columbia softwood plywood industry's competitive position, variations 1-3 would tend to perpetuate current coastal inefficiencies and entail the adverse implications noted above. Variation 4 would tend to slow the rate of the industry's ultimate decline, while 5 could work to offset drastic short-term adjustments. Since the industry did not utilize the existing GATT safeguards during the 1974-75 production and employment declines, however, the Provincial Government would probably have to assume the responsibility for initiating actions if variation 5 were selected.

Option Three: Tariff Maintenance in Support of Commercial Policy Developments to Improve the British Columbia Softwood Plywood Industry's Competitive Position

Option 3 involves the same basic GATT policy variations as Option 2, but is significantly different in terms or intent. Here, continued protection is designed not to perpetuate an inefficient industry, but to support commercial policy aimed at reestablishing the British Columbia softwood plywood industry's competitive footing.

To permit such developments, it is proposed that the Government of British Columbia support the industry's request for continued trade and tariff protection by recommending the quota, total exemption, or limited exemption policy variations 1, 2 or 3 as outlined in Option Two. Concurrently the Provincial Government will undertake bilateral discussions with appropriate segments of the industry, organized labour and the federal government to determine the feasibility of efforts to improve the industry's competitive performance. If such improvements appear possible, the Government of British Columbia will take steps to establish a task force for softwood plywood industry development. The task force will formulate, implement,and monitor a commercial policy program specifically designed to facilitate:

1. A reorientation of existing industry production patterns towards the output of a competitive lower quality, lower priced product mix;

2. A moderation of wage escalations, sufficient to narrow substantially the industry's current direct labour cost disadvantage vis-a-vis U.S. producers in the douglas fir region;

3. Rationalization of existing production facilities including the possible closing of obsolete mills, new investments and capital equipment modernization, as well as possible mergers, acquisitions and interindustry market allocation arrangements enabling product specialization and the exploitation of potential economies of scale.

The British Columbia softwood plywood industry's future performance potentials, under each of the general policy options, is detailed in Section IV.

IV. FUTURE POTENTIAL OF THE BRITISH COLUMBIA SOFTWOOD PLYWOOD INDUSTRY: PRODUCTION AND EMPLOYMENT PROSPECTS UNDER EACH PROVINCIAL GOVERNMENT POLICY OPTION 1977-85

General Overview

As revealed in Section II, the current competitive problems of the B.C. softwood plywood industry result from the combination of a complex set of interrelated variables. Shifting market demand trends, differences in output mix orientations, divergent cost functions, changes in the quality of the basic timber resource, expanded U.S. supply capabilities, and shortfalls in U.S. domestic demand requirements all have played a prominent role in explaining the past performance patterns of B.C. producers. Even if such factors were accurately quantifiable on a consistently comparable basis, econometric models and forecasts would provide an imperfect means of gauging the industry's future development potential. Specifications of historical statistical relationships unfortunately do not provide a "crystal ball" of the future. Despite the inherent limitations, however, the Ministry of Economic Development has developed projections of the B.C. softwood plywood industry future performance prospects under each of the policy options detailed in Section III. These projections, along with a general description of estimation methodology, are presented below. In short, the projections should be viewed only as a rough approximation of the industry's future development potential.

Aggregate Demand Projections

Future production and employment in the B.C. softwood plywood industry is ultimately related to total world demand for North American produced plywood. This demand can be subdivided into three major components: U.S. domestic demand, Canadian domestic demand, and foreign export demand (Table 20).

Table 20. Projections of Aggregate North American Plywood Demand 1977-85* (All figures quantities, billion square feet 3/8" basis)

	U.S. Domestic Demand		Canadian Domestic Demand		Foreign Export Demand		Total World North American Demand	
	Sanded	Sheathing	Sanded	Sheathing	Sanded	Sheathing	Sanded	Sheathing
1977	3.156	15.350	.705	1.685	.273	.472	4.134	17.507
1978	3.004	15.027	.713	1.747	.301	.542	4.018	17.316
1979	3.132	16.049	.721	1.809	.333	.609	4.186	18.467
1980	3.244	18.152	.728	1.872	.361	.679	4.333	20.730
1981	2.975	18.568	.726	1.914	.375	.728	4.076	21.210
1982	2.802	18.233	.724	1.956	.388	.777	3.914	20.966
1983	2.993	19.278	.721	1.999	.401	.827	4.115	22.104
1984	3.003	20.112	.718	2.042	.412	.878	4.163	23.042
1985	2.786	20.616	.714	2.086	.423	.930	3.923	23.632
(Average Annual Growth Rates 1977-85: Percent)								
	(-1.46)	4.29	0.16	2.97	6.87	12.13	(-0.63)	4.37

* The estimates are derived from a number of independent sources. The U.S. demand figures reflect MED projections based on solutions from the Data Resources Inc. (DRI) econometric models of the total U.S. economy and Forest Sector satellite model. These solutions combined with independent estimates of U.S. export production, supplied by the American Plywood Association (APA), provide projections of U.S. domestic demand. Canadian demand projections are based on forecasts provided by the Council of Forest Industries (COFI), subject to MED revisions. Foreign demand is based on MED estimates based on composite APA and COFI projections.

In total, world demand for North American softwood plywood is expected to display relatively strong growth throughout the 1977-85 period. A 3.42 percent average annual rate of expansion is projected roughly approximating the 1965-72 growth performance. Reflecting a continuation of the recent market trends, world demand for sanded plywoods will register a marginal decline (-0.63 percent/annum) with increased sheathing requirements (4.37 percent/annum) accounting for total demand growth. Future demand for sanded products appears particularly weak in the U.S. domestic market. However, the rate of total U.S. plywood demand expansion (3.31 percent/annum) will exceed Canadian performance (2.14 percent/annum), a result which is primarily attributable to more rapid growth in residential construction activity projected for the United States. Foreign export demand is expected to be strong for both sanded and sheathing products. This results from accelerating European requirements in the face of projected Scandinavian wood supply and plywood capacity constraints, as well as the development of new export opportunities in areas such as Japan and the Middle East.

While the demand projections for the 1977-85 period are generally favourable, this growth will be uneven as a result of cyclical fluctuations in U.S. and Canadian economic performance. The current U.S. housing recovery is expected to slow by mid-1977, and a decline in the level of housing starts is forecast for 1978. This, coupled with relatively low projected levels of U.S. nonresidential construction activity,

implies drops in both U.S. and world plywood demand levels in the 1978 period. However, a resurging North American housing preference for single rather than multi-family units should prevent the declines in the demand for plywood from being as severe as the 1974-75 experience. (Single family units tend to require more wood product inputs.) A similar set of circumstances is projected for mid-1981-82, leading to another weak plywood demand period. Projected Canadian residential construction patterns suggest a substantial slowing in the rate of domestic plywood demand growth after 1980. In total, the performance prospects of the North American plywood industry appear relatively strong through 1985, although potentially serious disruptions of production and employment patterns may develop in 1978 and the 1981-82 period.

The Significance of Total North American Plywood Demand Levels to the B.C. Softwood Plywood Industry's Performance Prospects

The B.C. industry's future employment and production prospects are directly linked to the amount of total North American softwood plywood demand which can be economically supplied by provincial producers. Estimation of such potentials must be based on a number of basic competitive assumptions. These are:

1. The current comparative cost position of B.C. interior region producers affords them a competitive advantage in the Canadian domestic market which will likely be maintained through 1985. Projected Canadian demand levels and interior

region capacities indicate that interior producers will enjoy sufficient domestic demand to permit full capacity utilization for the entire forecast period.

2. The comparative cost position of U.S. southern pine region producers affords them a competitive advantage in the U.S. domestic market which will also be maintained through 1985. Projected U.S. demand levels and production capacities imply that southern pine manufacturers will also enjoy sufficient demand to maintain full capacity utilization for the forecast period.

3. U.S. douglas fir region producers' current comparative cost advantage vis-a-vis B.C. coast manufacturers' affords them a competitive advantage in the U.S. domestic market which will be maintained through 1985. However, projected U.S. capacities suggest that douglas fir output will be in excess of U.S. domestic requirements throughout the forecast period.

4. Consequently, U.S. douglas fir producers and B.C. coastal producers will remain in direct competition for foreign export demand and those segments of future Canadian domestic softwood plywood demand in excess of the supply capabilities of B.C. interior region producers.

5. The magnitude of their cost and price advantages vis-a-vis B.C. coastal mills suggest that U.S. douglas fir producers will be able to sell all the output they choose to produce

throughout the forecast period.

6. However, U.S. production decisions will be constrained by the level of Canadian softwood plywood tariff protection and/or potential adjustments in the production cost and final product price differentials which currently exist between U.S. douglas fir and B.C. coast manufacturers.

This assumption set, in conjunction with the aggregate demand projections detailed in Table 20, permit the estimation of future B.C. softwood plywood production and employment prospects under each of the aforementioned policy options. Employing the DRI aggregate U.S. econometric model and Forest Sector satellite model, MED has forecasted U.S. plywood capacity for the 1977-85 period. The same models provide the basis for forecasting U.S. production levels under various sets of economic assumptions related to each policy option. This information allows the direct calculation of total demand for Canadian produced softwood plywood from the basic relationship:

$$DCSP = DTNASP - USSPP$$

where: DCSP = demand for Canadian produced softwood plywood

DTNASP = total demand for North American produced softwood plywood (Table 20)

USSPP = total U.S. softwood plywood production.

B.C. production is then directly derivable on the basis of historic relationships with total demand for Canadian produced

plywood. Historic relationships between B.C. production and industry employment, in turn, permits the estimation of provincial employment levels. (See "Technical Note")

Basic Control Forecast

In order to specify the sensitivity of B.C. future softwood plywood production and employment potentials to each of the policy options, a base forecast is required. Ideally, such a control solution should reflect a status quo situation unaffected by policy variations. Consequently, the appropriate assumptions for this forecast would appear to be:

1. The Canadian tariff on softwood plywood products is retained at the current 15 percent ad valorem level; and
2. The production cost and output price differentials between U.S. douglas fir and B.C. coastal manufactures maintain their current proportional relationships throughout the forecast period.

Unfortunately assumption 2 is not really an appropriate status quo situation. As detailed in Section II, the B.C. coast competitive disadvantage resulted from gradual long term development, with the cost and price differentials widening considerably in the 1972-75 period. Consequently, freezing the proportional differentials for the forecast period implies improvements in the B.C. coastal industry's recent competitive performance, entailing some of the commercial policy developments of option 3. Despite this factor, assumption 2 is employed for the control solution.

Table 21 presents the key estimation factors employed in the control forecast, as well as the projections of future B.C. softwood plywood production and employment levels

Table 21. Future B.C. Softwood Plywood Industry Production and Employment Potentials - Control Forecast - 1977-85

Factors

Period	U.S. Capacity Utilization (Percent)		U.S. Softwood Plywood Production (billion sq.ft. 3/8" basis)		Total Demand for Canadian Produced Softwood Plywood (billion sq.ft. 3/8" basis)	
	Sanded	Sheathing	Sanded	Sheathing	Sanded	Sheathing
1977	71.03	91.91	3.689	15.673	.445	1.834
1978	67.68	90.32	3.557	16.022	.461	1.294
1979	68.96	90.98	3.575	16.877	.611	1.590
1980	71.09	96.21	3.682	19.002	.651	1.728
1981	66.86	93.14	3.435	19.496	.641	1.714
1982	64.54	88.15	3.259	19.183	.655	1.783
1983	68.73	89.84	3.453	20.261	.662	1.843
1984	69.36	90.32	3.493	21.137	.670	1.906
1985	64.89	89.73	3.241	21.661	.682	1.971

British Columbia Potentials

Period	Production (billion sq.ft. 3/8" basis)			Employment* (number of jobs)		
	Sanded	Sheathing	Total	Direct	Indirect**	Total
1977	.400	1.614	2.014	8,056	6,445	14,501
1978	.415	1.138	1.553	6,212	4,970	11,182
1979	.550	1.399	1.949	7,718	6,176	13,894
1980	.586	1.521	2.107	8,259	6,607	14,866
1981	.577	1.508	2.085	8,090	6,472	14,562
1982	.590	1.569	2.159	8,291	6,633	14,924
1983	.596	1.622	2.218	8,428	6,742	15,170
1984	.603	1.677	2.280	8,573	6,858	15,431
1985	.614	1.734	2.348	8,735	7,988	15,723
Average Annual Growth (1977-85) - %						
	6.69	0.92	2.07	1.05	1.05	1.05

* Employment related to total veneer and plywood industry.

** Indirect employment multiplier: F.L.C. Reed and Associates estimates.

In the control solution the combined effects of the Canadian tariff and the static cost and price differentials are projected to have a discernible impact on U.S. production decisions. These factors, in conjunction with other independent demand related variables, interact to constrain average U.S. capacity utilization ratios to 68.27 percent for sanded and 91.18 percent for sheathing plywoods during the forecast period. This results in the total U.S. ratio averaging only 86.62 percent, well below the optimum 90 percent level. Consequently, aggregate demand for Canadian produced softwood plywood remains sufficient to permit moderate growth in British Columbia production and employment.

For the entire forecast period, B.C. softwood plywood production is expected to expand at an annual average rate of 2.07 percent, permitting a 1.05 percent annual average increase in total industry employment. This projected performance is, however, quite erratic. As witnessed in Table 21, the current B.C. production recovery is projected to stagnate in 1977, and the industry appears vulnerable to substantial production declines in 1978. Direct employment levels are estimated to expand in 1977 by approximately 600 jobs (from 1976) as employment adjustments continue to lag production shifts. Reflecting the recent 1974-75 experience, however, layoffs are expected to come "close on the heels" of projected 1978 production declines. Consequently, a sizable provincial employment adjustment problem may develop in 1978 regardless of trade and commercial policy decisions.

Post-1978 performance patterns are somewhat more stable. It is expected that 1979 will witness a strong resurgence in demand, precipitating sizable B.C. production and employment gains. With the exception of slight declines in 1981, provincial production and employment levels are projected to continue on a moderately expansive path through 1985.

One additional element of the control forecast demands comment at this point. The bulk of post-1978 B.C. production increases are attributable to sanded rather than sheathing products. This results from a combination of factors, with the fundamental determinant being related to the production orientation of the U.S. industry. Review of Table 20 indicates that the end use preferences inducing proportional market demand shifts in favour of sheathing products are strongest in the U.S. domestic market. Given the U.S. industry's basic domestic orientation, production patterns appear to be increasingly geared toward sheathing production. As early as 1971 U.S. manufacturers began to reduce their sanded production capacities, and this trend is expected to continue throughout the forecast period. The aggregate demand projections indicate substantial growth in foreign export demanded for sanded products. The B.C. coast timber resource is supportive of sanded plywood production. Consequently, if the aggregate demand projections are basically correct and some competitive improvements can be achieved, then foreign markets for sanded plywoods should represent production potential for B.C. coast producers. It should be

further noted, however, that peak 1985 projections of B.C. sanded plywood production potentials are still some 20 percent below the levels of sanded output produced in 1973. Consequently these trends, while favourable, do not undermine previous arguments calling for a basic reorientation of the B.C. softwood plywood output mix.

In short, the control solution provides a rough approximation of B.C. softwood plywood production and employment potential assuming no adjustments in Canadian tariff protection and no change in the current relative competitive disadvantage of B.C. coastal producers vis-a-vis U.S. douglas fir manufacturers. It therefore provides a basis for analyzing the implications of each of the provincial policy options described in Section III, and a means of determining the impact of such policies on B.C. industry production and employment levels. These results are detailed below.

B.C. Softwood Plywood Industry Potential under Policy Option One: The Province Allows Softwood Plywood Tariff Protection to Fall Under the General Formula

The Policy Option One forecast is based on the following assumptions:

1. Canada agrees to subject softwood plywood duties to a general 60 percent GATT tariff reduction formula, dropping the current domestic market protection from 15 percent to 6 percent ad valorem. This reduction is implemented in 1979.

2. Faced with an imminent tariff reduction, B.C. coastal producers do not initiate any actions (i.e. new investment, production rationalization, etc.) to improve their competitive position vis-a-vis U.S. douglas fir manufacturers. Consequently, production cost and output price differentials between the two regions continue to widen at a rate approximating the 1971-76 historical experience.[1]

Projections of future B.C. softwood plywood production and employment levels under such a situation are detailed, along with key estimation factors, in Table 22.

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1. It is noted that GATT tariff reductions have historically been phased rather than implemented in a lump sum fashion. Consequently, the tariff assumption for policy option one may appear to be oversimplified. However, as detailed in the Technical Note, the impact of tariff adjustments on B.C. industry potentials are constrained by other factors suggesting that more elaborate simulations are unnecessary. Consequently, phasing of the tariff cut would not substantially alter the projections.

Table 22. Future B.C. Softwood Plywood Industry Production and Employment Potential - Policy Option One Forecast - 1977-85

Factors

Period	U.S. Capacity Utilization (Percent)		U.S. Softwood Plywood Production (billion sq.ft. 3/8" basis)		Total Demand for Canadian Produced Softwood Plywood (billion sq.ft. 3/8" basis)	
	Sanded	Sheathing	Sanded	Sheathing	Sanded	Sheathing
1977	71.36	92.13	3.708	15.739	.426	1.768
1978	68.34	90.76	3.592	16.101	.426	1.215
1979	71.95	93.64	3.730	17.370	.456	1.097
1980	74.41	99.09	3.854	19.570	.479	1.160
1981	70.51	96.24	3.622	20.143	.454	1.067
1982	68.52	91.47	3.459	19.904	.455	1.062
1983	73.04	93.38	3.670	21.057	.445	1.047
1984	74.00	94.08	3.727	22.015	.436	1.027
1985	69.86	93.71	3.489	22.622	.434	1.010

British Columbia Potentials

Period	Production (billion sq.ft. 3/8" basis)			Employment* (number of jobs)		
	Sanded	Sheathing	Total	Direct	Indirect**	Total
1977	.383	1.556	1.939	7,756	6,205	13,961
1978	.383	1.069	1.452	5,808	4,646	10,454
1979	.410	.965	1.375	5,500	4,400	9,900
1980	.431	1.021	1.452	5,800	4,646	10,454
1981	.409	.939	1.348	5,392	4,314	9,706
1982	.409	.934	1.343	5,372	4,298	9,670
1983	.400	.921	1.321	5,284	4,227	9,511
1984	.392	.904	1.296	5,184	4,147	9,331
1985	.391	.889	1.280	5,120	4,096	9,216
Average Annual Growth (1977-85) - %						
	.26	(-5.36)	(-4.24)	(-4.24)	(-4.24)	(-4.24)

* Employment related to total veneer and plywood industry.

** Indirect employment multiplier: F.L.C. Reed and Associates estimates.

The joint effects of the tariff reduction and increasing douglas fir competitive advantage are estimated to allow substantial increases in U.S. production. These effects are separable into two segments. Based on analysis of 1971-76 data, continuation of adverse comparative production cost and output price trends are projected to allow a 3.0 percent increase in the average U.S. sanded plywood capacity utilization ratio and a 2.0 percent increase in the average sheathing ratio by 1985. These increases are expected to occur in a relatively smooth incremental fashion throughout the forecast period. The tariff cut is estimated to allow a 2.0 percent increase in both ratios, causing lump sum jumps in 1979 which continue through 1985. In total, the entire U.S. plywood industry is projected to maintain 89.49 percent capacity utilization for the forecast period, roughly approximating the optimal 90 percent ratio. The resultant U.S. production increases cause sizable reductions in the remaining total demand for Canadian produced softwood plywood. Insufficient demand, in turn, results in substantial British Columbia production and employment declines.

Based on Policy Option One, both B.C. production and employment levels are expected to decline at an average annual rate of 4.24 percent throughout the forecast period. Prior to 1979, the pattern of this performance roughly approximates the control solution; the B.C. current production recovery stagnates in 1977 leading to dramatic output and employment

declines in 1978. The 1979-80 period witnesses some recovery, but to a much lesser extent than the control forecast. After 1980 the B.C. industry is projected to experience relatively steady production and employment losses.

The forecast also implies a forced rationalization of total B.C. production on a regional basis. For the 1981-85 period, total demand for B.C. sheathing output is projected to be barely sufficient to meet the maximum production capabilities of interior region manufacturers. Consequently, coastal manufacturers may be forced to suspend sheathing production as early as 1981, and limit their operations to meeting the demands of the limited sanded plywood market.

The total economic impacts embodied in Policy Option One are summarized in Table 23. The data reveal the magnitude of potential provincial production and employment losses calculated on the basis of the control solution.

Table 23. B.C. Production and Employment Opportunity Losses Associated with Policy Option One (Option One vs. Control Solution)

	Production (billion sq.ft. 3/8" basis)			Employment (number of jobs)		
Period	Sanded	Sheathing	Total	Direct	Indirect	Total
1977	.017	.058	.075	300	240	540
1978	.032	.069	.101	404	323	727
1979	.140	.434	.574	2,218	1,774	3,992
1980	.155	.500	.655	2,459	1,961	4,420
1981	.168	.569	.737	2,698	2,158	4,856
1982	.181	.635	.816	2,919	2,335	5,245
1983	.196	.701	.897	3,144	2,515	5,659
1984	.211	.773	.984	3,389	2,711	6,100
1985	.223	.845	1.068	3,615	2,892	6,507
Average for 1977-85 period						
	.147	.509	.656	2,388	1,910	4,298

By 1979 B.C. manufacturers are projected to encounter potential production losses approximating 600 million square feet 3/8" basis, over 75 percent of which will be related to sheathing plywoods. The associated direct employment losses will exceed 2,200, which, combined with indirect employment effects, entails the potential loss of almost 4,000 B.C. job opportunities. By 1985 these potential losses are expected to expand to over a billion square feet and over 3,600 direct and 6,500 total job opportunities. These estimates provide a rough approximation of the magnitude of the British Columbia production and employment adjustment problem associated with a tariff cut and the continued competitive inefficiency of the B.C. coast softwood plywood industry.

B.C. Softwood Plywood Industry Potentials under Policy Option Two: Simple Tariff Maintenance

The Policy Option Two forecast is based on the following assumptions:

1. Based on recommendations from the Government of British Columbia, the Canadian GATT negotiating team seeks and achieves a tariff exemption on softwood plywood products at the Tokyo Round of negotiations. Consequently, domestic market protection is retained at 15 percent ad valorem throughout the forecast period.

2. Neither the industry nor federal or provincial governments initiate any commercial policy efforts to improve the competitive performance of the B.C. coastal softwood plywood industry. Consequently, production cost and output price disadvantages vis-a-vis the douglas fir region continue to increase at a rate approximating the 1971-76 historical experience.

Table 24 details the resultant B.C. production and employment potentials and key expanatory factors.

Table 24. Future B.C. Softwood Plywood Industry Production and Employment Potentials - Policy Option Two Forecast - 1977-85

	Factors					
	U.S. Capacity Utilization (Percent)		U.S. Softwood Plywood Production (billion sq.ft. 3/8" basis)		Total Demand for Canadian Produced Softwood Plywood (billion sq.ft. 3/8" basis)	
Period	Sanded	Sheathing	Sanded	Sheathing	Sanded	Sheathing
1977	71.36	92.13	3.708	15.739	.426	1.768
1978	68.34	90.76	3.592	16.101	.476	1.215
1979	69.95	91.64	3.626	16.999	.560	1.468
1980	72.41	97.09	3.750	19.175	.583	1.555
1981	68.51	94.24	3.519	19.724	.557	1.486
1982	66.52	89.47	3.359	19.469	.555	1.497
1983	71.04	91.38	3.569	20.606	.546	1.498
1984	72.00	92.08	3.626	21.547	.537	1.495
1985	67.86	91.71	3.389	22.139	.534	1.493

	British Columbia Potentials					
	Production (billion sq.ft. 3/8" basis)			Employment* (number of jobs)		
Period	Sanded	Sheathing	Total	Direct	Indirect**	Total
1977	.383	1.556	1.939	7,756	6,205	13,961
1978	.333	1.069	1.452	5,808	4,646	10,454
1979	.504	1.292	1.796	7,184	5,747	12,931
1980	.525	1.368	1.893	7,572	6,058	13,630
1981	.501	1.308	1.809	7,236	5,789	13,025
1982	.499	1.317	1.816	7,264	5,811	13,075
1983	.491	1.318	1.809	7,236	5,789	13,025
1984	.483	1.316	1.799	7,196	5,757	12,953
1985	.481	1.314	1.795	7,180	5,744	12,924
Average Annual Growth 1977-85 - %						
	3.20	(-1.94)	(-0.92)	(-0.92)	(-0.92)	(-0.92)

* Employment related to total veneer and plywood industry.

** Indirect employment multiplier: F.L.C. Reed and Associates estimates.

The Policy Option Two forecast approximates the Option One solution minus the effects of a tariff reduction. Continuation of adverse B.C. coast price and cost performance trends results in an average increase in the U.S. sanded capacity utilization ratio of 3.0 percent and a sheathing average increase of 2.0 percent, both of which develop incrementally over the entire forecast period. Tariff maintenance, however, has a constraining influence on U.S. production, and the total industry's capacity utilization level is held to an average level of 87.88 percent. This production limitation, in turn, results in sufficient residual world demand to allow for a moderate expansion of B.C. sanded plywood output. This increase is, however, more than offset by declining sheathing production, and the B.C. industry is expected to encounter total production and employment losses.

The losses in both categories are expected to occur at an annual average rate of 0.92 percent during the entire 1977-85 period. The same cyclical pattern of previous forecasts is evident, with 1978 developing as a particularly poor year. Tariff maintenance, however, permits a substantial production and employment recovery in the 1979-80 time frame. Losses reappear in 1981 followed by a stagnate growth period in 1982-83. Production and employment levels are expected to resume their negative adjustment trend in 1984-85. A forced rationalization of total provincial production is again implied. with large-scale liquidations of coastal sheathing capacity appearing as the most likely alternative.

Based on variations from the control solution, the magnitude of potential B.C. production and employment losses are detailed in Table 25.

Table 25. B.C. Production and Employment Opportunity Losses Associated with Policy Option Two (Option Two vs. Control Solution)

	Production (billion sq.ft. 3/8" basis)			Employment (number of jobs)		
Period	Sanded	Sheathing	Total	Direct	Indirect	Total
1977	.017	.058	.075	300	240	540
1978	.032	.069	.101	404	323	727
1979	.046	.107	.153	534	427	961
1980	.061	.153	.214	687	549	1,236
1981	.076	.200	.276	854	683	1,537
1982	.091	.252	.343	1,027	822	1,849
1983	.105	.304	.409	1,192	953	2,145
1984	.120	.361	.481	1,377	1,101	2,487
1985	.133	.420	.553	1,555	1,244	2,799
Average for 1977-85 period.						
	.076	.214	.289	920	736	1,656

In the absence of positive commercial policy initiatives, the B.C. softwood plywood industry faces substantial potential employment and production losses, regardless of the provincial stance on the tariff retention issue. Continuation of recent competitive performance trends indicate a production loss exceeding 550 thousand square feet 3/8" basis compared to the 1985 output potential of the control solution. Similar calculations imply a direct employment loss in excess of 1,500 which, combined with indirect effects, represents almost 2,800 job opportunities. In addition to these losses, provincial

trade policy support for the noncompetitive coastal industry entails additional disadvantages for other segments of the B.C. economy. As detailed in Section III, Policy Option Two would significantly compromise the provincial government's GATT policy stance, and subject nonrelated B.C. exporters to potentially damaging foreign retaliatory measures. Although these considerations are not directly quantifiable in terms of economic impacts, they should not be overlooked.

B.C. Softwood Plywood Industry Potential under Policy Option Three: Tariff Retention in Support of Commercial Policy Developments to Improve Competitive Performance

The assumption set for Policy Option Three resembles the control solution with some slight variations:

1. Domestic market protection for softwood plywood manufacturers is retained, either by maintaining the current 15 percent duty, or adopting some form of quota system, or limiting GATT tariff reductions to a narrow range of high quality plywoods which are not vulnerable to extensive import injury.

2. Appropriate segments of the industry, organized labour and the federal and provincial governments jointly undertake a coordinated commercial policy development effort aimed at improving the competitive performance of the B.C. coastal plywood industry.

3. (Variation A) Commercial policy efforts prove effective enough to prevent further widening of production cost and

output price differentials between U.S. douglas fir and B.C. coastal manufacturers.

4. (Variation B) Commercial policy efforts prove effective enough to permit some improvement in the B.C. coast competitive disadvantage.

Since a detailed commercial policy program has not yet been specified, assumptions concerning its effectiveness may appear as somewhat "iffy" propositions. However, there is some evidence suggesting a developing potential for such competitive improvements. Reflecting the strong resurgence in U.S. plywood demand experienced in 1976 and projected for 1977, plywood prices are expected to be subject to strong demand pull inflationary pressures. As detailed in Section II, U.S. douglas fir producers are increasingly encountering wood supply constraints forcing a larger proportional reliance on the public timber resource. This is precipitating a sizable stumpage cost push effect, which in conjunction with demand factors is expected to increase 1977 douglas fir production costs and final output prices by as much as 30 percent over average 1976 levels. Such factors are projected to dissipate with the 1978 slump in plywood demand, but should reappear in the 1979-81 period. Consequently, while B.C. industry projections which assume competitive improvements may appear tenuous, they should not necessarily be relegated to the realm of groundless hopes.

Employing assumption 3, variation A, the Policy Option Three forecast is identical to the control solution. Table 21 (p.70) details the projected parameters, and Tables 23 (p.78) and 25 (p.82) can alternately be viewed as presenting the B.C. production and employment gains which would result if option three were adopted in favour of options one or two. In addition to these projections, several analytical refinements, embodied in the control forecast, should also be noted. Unlike the Policy Option One and Two forecasts, control projections assume productivity improvements by B.C. coastal plywood manufacturers. Measuring such improvements in terms of output per man hour, commercial policy efforts to reorient the existing coastal plywood output mix are estimated to allow a modest 7.0 percent increase in coastal productivity performance by 1985.* Because of the nature and extent of the current competitive problem and existing production rigidities, such improvements are not expected to have an impact on B.C. comparative performance prior to the general resurgence in world plywood demand levels projected for 1979. In the 1979-85 period, the productivity increases are expected to develop in a gradual incremental fashion. It should be further noted that these improvements primarily result from the potential productivity gains inherent in the production of a lower quality (and hence lower cost) output mix, and do not entail excessive efforts to constrain B.C. industry wage escalations. In short, the control solution appears as a

* See "Technical Note" for estimation factors.

reasonable approximation of the B.C. future potential, provided efforts are undertaken to reorient the industry towards a more competitive output mix and B.C. wage increases approximate the rate of similar escalations in the U.S. douglas fir region.

With a more extensive commercial policy development effort (i.e. assumption 4, variation B), the future potential of the British Columbia softwood plywood industry could be further enhanced. As detailed above, such efforts would entail a narrowing of current direct labour cost differentials and an active industry-government program aimed at facilitating the the rationalization of coastal production facilities, as well as the aforementioned reorientation of the province's plywood output mix. In total, MED estimates that such a program could precipitate a 17.50 percent improvement in coastal productivity by 1985.* Reflecting the same considerations employed in the control forecast, the discernible impacts of these improvements would most likely be delayed until 1979, and gradually develop after that point. Table 26 details the projections employing this most favourable assumption set.

* See "Technical Note" for estimation factors.

Table 26. Future B.C. Softwood Plywood Industry Production and Employment Potential - Policy Option Three (most favourable) Forecast - 1977-85

Factors

Period	U.S. Capacity Utilization (Percent)		U.S. Softwood Plywood Production (billion sq.ft. 3/8" basis)		Total Demand for Canadian Produced Softwood Plywood (billion sq.ft. 3/8" basis)	
	Sanded	Sheathing	Sanded	Sheathing	Sanded	Sheathing
1977	71.03	91.91	3.689	15.673	.445	1.834
1978	67.68	90.32	3.557	16.022	.461	1.294
1979	68.68	90.70	3.560	16.825	.626	1.642
1980	70.53	95.65	3.653	18.891	.680	1.812
1981	66.02	92.30	3.391	19.318	.685	1.892
1982	63.42	87.03	3.202	18.938	.712	2.028
1983	67.33	88.44	3.383	19.943	.732	2.161
1984	67.68	88.64	3.408	20.742	.755	2.300
1985	62.89	87.73	3.141	21.178	.782	2.454

British Columbia Potentials

Period	Production (billion sq.ft. 3/8" basis)			Employment* (number of jobs)		
	Sanded	Sheathing	Total	Direct	Indirect**	Total
1977	.400	1.614	2.014	8,056	6,445	14,501
1978	.415	1.138	1.553	6,212	4,970	11,182
1979	.563	1.445	2.008	7,831	6,265	14,096
1980	.612	1.594	2.206	8,383	6,706	15,089
1981	.616	1.665	2.281	8,440	6,752	15,192
1982	.641	1.785	2.426	8,734	6.987	15,721
1983	.659	1.902	2.561	8,963	7,170	16,133
1984	.676	2.024	2.703	9,190	7,352	16,542
1985	.704	2.159	2.863	9,448	7,558	17,006
Average Annual Growth 1977-85 - %						
	9.50	4.22	5.26	2.15	2.15	2.15

* Employment related to total veneer and plywood industry.

** Indirect employment multiplier: F.L.C. Reed and Associates estimates.

B.C. competitive improvements in tandem with retention of domestic market tariff protection are estimated to interact further constraining projected U.S. production levels. In total, both U.S. sanded and sheathing capacity utilization ratios are expected to fall some 2.0 percent below control solution levels by 1985. As a result the total U.S. industry's capacity ratio is held to an average of 85.68 percent for the entire forecast period, almost one percent below the control limitation. This leaves sufficient residual world demand for Canadian produced softwood plywood to permit substantial long term expansions of B.C. production and employment.

For the entire forecast period, B.C. softwood plywood production is expected to expand at an annual average rate of 5.26 percent, permitting a 2.15 annual average increase in total industry employment. The gap between production and employment growth rates directly reflects assumed improvements in the B.C. coastal productivity performance. Both sanded and sheathing production are expected to display positive growth, with sanded output registering a more aggressive expansion rate based on the same rationale supporting the control solution. However, while total production volume is expected to exceed 1973 record levels by 1981, B.C. sanded production will fall below the 1973 historical experience throughout the forecast period. Consequently, there remains a clear need to reorientate the coastal industry's current output mix even under the most favourable assumption set.

Table 27 details the magnitude of potential additional employment and production gains (i.e. gains in excess of those achievable from the control solution) which could accrue to B.C. manufacturers as a result of "most favourable" commercial policy developments.

Table 27. Potential B.C. Production and Employment Gains Associated with Policy Option Three (Option Three vs. Control Solution

	Production (billion sq.ft. 3/8" basis)			Employment (number of jobs)		
Period	Sanded	Sheathing	Total	Direct	Indirect	Total
1977	0.0	0.0	0.0	0	0	0
1978	0.0	0.0	0.0	0	0	0
1979	.013	.046	.059	113	91	204
1980	.026	.073	.099	124	99	223
1981	.039	.157	.196	350	280	630
1982	.051	.216	.267	443	354	797
1983	.063	.280	.343	535	428	963
1984	.076	.347	.423	617	494	1,111
1985	.090	.425	.515	713	570	1,283
Average for 1977-85 Period						
	.040	.172	.212	322	258	580

The additional competitive improvements embodied in variation B will not have a discernible impact on B.C. performance until 1979.

All forecasts, regardless of options, point to sizable B.C. production and employment declines in the mid-1977-78 period. This is the unfortunate legacy of the B.C. industry's current competitive problems. However, the industry does

appear to have a positive development potential in the 1979-85 period, provided that appropriate trade and commercial policy steps are undertaken.

Impact of 1978 Performance Prospects on Commercial Policy Development Efforts

Although GATT tariff decisions and potential long-term commercial policy development efforts are not expected to affect the B.C. softwood plywood industry's performance prior to 1979, developments in the 1977-78 period are an area of major concern. Based on the control solution, over 30 percent of the Canadian domestic softwood plywood market may be lost to U.S. imports in 1978, and B.C. production and employment dislocations could exceed the disruptions experienced in 1974-75. While the control solution suggests that import injury of this magnitude is a temporary phenomenon (forecasted to dissipate in 1979), the B.C. industry's response to this adverse situation could be critical to longer-term commercial policy development efforts. Weak 1978 performance could precipitate premature liquidations of coastal production facilities, facilities which might prove variable given the resurgence in aggregate plywood demand projected for the 1979-85 period.

Consequently, if a version of policy option three is selected, additional temporary support mechanisms may be required in the mid-1977-78 period. Article XIX of the general GATT agreement does allow temporary protection, provided that a number of specific criteria regarding the nature and extent of import injury are met. The Ministry of Economic Development is

currently examining the B.C. industry's potential case for Article XIX relief in the 1978 period, and is prepared to initiate appropriate measures if the B.C. industry's longer-term development potential appears in serious jeopardy.

The Significance of the Softwood Plywood Industry Trade and Commercial Policy Challenge to British Columbia - Summary

This paper has presented an assessment of the international competitive challenge affecting the British Columbia softwood plywood industry, and the trade and commercial policy decisions facing the provincial government. Based on its analysis of the situation, the Ministry of Economic Development must conclude that the coastal segments of the B.C. industry are currently operating at a serious comparative disadvantage, and that substantial production and employment dislocations are imminent without strong corrective actions. As presented in Section III, the provincial government has three basic policy options at its disposal. Based on the projections of Section IV, each option entails a different set of economic impacts. The range of these potential impacts are detailed in Table 28. The table presents the differentials in B.C. production and employment prospects, based on the comparison of policy option one with the most favourable version of policy option three.

Table 28. Range of Potential B.C. Production and Employment Gains (Option One vs. Option Three)

	Production (billion sq.ft. 3/8" basis)			Employment (number of jobs)		
Period	Sanded	Sheathing	Total	Direct	Indirect	Total
1977	.017	.058	.075	300	240	540
1978	.032	.069	.101	404	323	727
1979	.153	.480	.633	2,331	1,865	4,196
1980	.181	.573	.754	2,583	2,066	4,649
1981	.207	.726	.933	3,048	2,438	5,486
1982	.232	.851	1.083	3,362	2,690	6,052
1983	.259	.981	1.240	3,669	2,935	6,604
1984	.284	1.120	1.404	4,006	3,205	7,211
1985	.313	1.270	1.583	4,328	3,462	7,790
Average for 1977-85 period						
	.186	.681	.867	2,709	2,167	4,876

The Government's decision on the softwood plywood issues entails a substantial impact on the total British Columbia economy. Compared to the most favourable alternatives, provincial support for a tariff reduction could entail the opportunity loss of over 1. billion square feet in production volume and over 4,300 direct and almost 8,000 total job opportunities by 1985. This would force a virtual suspension of coastal sheathing production, constraining the region to limited high quality sanded operations. However, if trade and tariff protection is retained, at least temporarily, and if effective commercial policy initiatives to improve the industry's competitive

performance are undertaken, these potential losses may be avoided.

In short, the government's trade and commercial policy decisions are critical to the future viability of the B.C. coastal region softwood plywood industry. The Ministry's policy recommendations are detailed in Section V.

V. CONCLUSIONS AND RECOMMENDATIONS

Rationale

The policies of the Government of British Columbia in response to the trade and commercial policy challenge facing the softwood plywood industry should reflect two basic considerations. First, based on the analysis of the preceding report, it must be concluded that the coastal segments of the British Columbia industry remain extremely vulnerable to import injury and will suffer substantial employment and production dislocations in the event of reductions in domestic market tariff protection. In addition to direct losses, these potential dislocations entail adverse implications for the other components of the entire forest sector as well as the aggregate performance of the total provincial economy (Section I). Second, and largely independent from tariff considerations, it must also be concluded that major portions of the coastal industry are currently noncompetitive on an international basis. Substantial portions of traditional domestic and export markets have been lost to U.S. competitors, and additional future market erosions appear imminent without competitive improvements on the industry's behalf. However, the deteriorating trends of comparative performance witnessed in the 1972-76 period (Section II) raise questions regarding the industry's ability to achieve competitive improvements independently.

Consequently, the Government's GATT policy position regarding softwood plywood cannot be separated from its broader economic goals. The province's future requirements demand the continued development of an efficient internationally competitive economic base. While the Government wishes to minimize the potential loss of plywood related production and employment opportunities, the economic inefficiency costs associated with the perpetuation of a noncompetitive industrial segment cannot be ignored. It is therefore recommended that the Government of British Columbia's support for continuation of trade protection for softwood plywood products be contingent upon a substantial and coordinated effort by industry, organized labour and the federal and provincial governments to improve the competitive performance of the British Columbia softwood plywood industry. This represents adoption of Policy Option Three (Section III), entailing the following initiatives by the provincial government.

1. Official Statement of Concern

   It is recommended that the Government of British Columbia make a formal statement of concern regarding the future viability of the coastal region's softwood plywood industry to appropriate segments of the industry, organized labour and the Government of Canada. Said statement should be supported by a Cabinet approved version of the preceding Ministry of Economic Development report: "The Trade and

Commercial Policy Challenge facing the British Columbia Softwood Plywood Industry."

2. Bilateral Discussions

It is recommended that the Government of British Columbia initiate a set of concurrent bilateral discussions with all interested parties to explore the means and feasibility of competitive improvements.

a. Provincial Government - Industry Discussions

Participants: Ministry of Economic Development, Ministry of Forests, all British Columbia plywood producers and related industry associations.

Objectives: Common understanding of industry's trade and commercial policy challenge, specification of industry's future development intentions, identification of potential provincial and/or federal government measures which would aid the industry's competitive improvement. In addition, industry representatives will be requested to provide data for a level-of-the-firm study, sponsored by the Ministry of Economic Development, to determine the extent to which individual mills are susceptible to production and employment displacements, and require plant and equipment modernization.

Resultant Policy Decisions: Government of British Columbia will decide whether or not it will support

the concept of continued trade and tariff protection on softwood plywood products.

Timing: Complete discussion of current competitive challenge - May 1, 1977; specification of industry development intentions and results of level-of-the-firm study - June 1, 1977; formal government position on tariff exemption issue - June 15, 1977.

b. Provincial Government - Federal Government Discussions

Participants: Ministry of Economic Development, Department of Industry, Trade and Commerce and Department of Finance (GATT officials).

Objectives: Common understanding of industry's trade and commercial policy challenge, specification of federal concerns regarding softwood plywood tariff exemption, discussion of potential magnitude and form of federal adjustment and/or industrial incentive assistance to aid softwood plywood industry development, discussion of possible policy revisions to aid rationalization of British Columbia plywood production (i.e. taxes, competition policy, etc.).

Timing: Complete preliminary rounds of discussion - June 1, 1977.

c. Provincial Government - Organized Labour Discussions

Participants: Ministry of Economic Development, Ministry of Labour and International Wood Workers Union.

Objectives: Common understanding of industry's trade and commercial policy challenge, specification of labour's concerns regarding technological innovations, industry output mix reorientation, and wage aspirations.

Timing: Complete preliminary round of discussions - June 1, 1977.

3. Establishment of Task Force for Softwood Plywood Industry Development

The bilateral discussions will determine the feasibility of potential adjustments in industry structure, cost functions and output mix orientation designed to improve the competitive performance of the British Columbia softwood plywood industry. If it is concluded that such improvements are possible, it is recommended that the Government of British Columbia establish a formal task force for the softwood plywood industry development. The task force will include selected representatives from the industry, organized labour and the federal and provincial governments, and will formulate, implement and monitor a commercial policy program to facilitate:

a. A reorientation of existing coastal industry production patterns towards the output of a competitive lower quality, lower priced product mix;

b. Constraint of wage escalations sufficient to narrow substantially the industry's current direct labour

cost disadvantage vis-a-vis U.S. producers in the douglas fir region;

c. Rationalization of existing coastal region production facilities including the closing of obsolete mills, new investments and capital equipment modernization, as well as possible mergers, acquisitions and inter-industry market allocation arrangements designed to enable product specialization and the exploitation of potential economies of scale.

4. Trade and Tariff Recommendations

If an appropriate commercial policy effort is undertaken, it is recommended that the Government of British Columbia formally endorse the concept of continued Canadian domestic market trade protection for softwood plywood products. This endorsement will be formulated and communicated to federal GATT officials by one of the following provincial policy stances:

a. The Government of British Columbia requests that existing Canadian tariffs on softwood plywood products be replaced with a system of import quotas which will effectively guarantee a fixed proportion of future domestic demand to Canadian producers;

b. The Government of British Columbia requests that softwood plywood products be specifically excluded from the items that Canada will expose to general tariff

reductions at the Tokyo Round of GATT (i.e. the Canadian tariff on softwood plywood should remain at 15 percent ad valorem); or

c. The Government of British Columbia requests that Tokyo round general tariff reductions be limited to a narrow range of plywood products, to include only exterior sanded and sheathing panels of grade CXC or higher.

The exact form of the province's GATT position will be formulated based on specific recommendations of the task force.

5. In anticipation of significant import injury in the 1978 period, the task force in conjunction with the British Columbia Ministry of Economic Development will immediately undertake an evaluation of additional support mechanisms including temporary trade protection under Article XIX of the General Agreement on Tariffs and Trade. If the 1978 situation threatens to jeopardize longer-term development effects, initiation of safeguard actions will be recommended to the federal government.

TECHNICAL NOTE

Technical Note: Derivation of Demand for Canadian Produced Softwood Plywood and British Columbia Production and Employment Levels

As detailed in Section IV, the various projections of total demand for Canadian produced softwood plywood are based on the mathematical identity:

$$DSCP = DTNASP - USSPP$$

where

DSCP = demand for Canadian produced softwood plywood

DTNASP = total demand for North American produced plywood

USSPP = total U.S. softwood plywood production.

Employing this identity, in conjunction with Section IV's basic competitive assumptions (pp.66-68), demand for Canadian produced plywood is derivable from econometric projections of U.S. production levels and aggregate world demand for North American produced plywood. Simultaneous equation systems, available through Data Resources Inc. (DRI), model the total U.S. economy and forest sector, providing a basis for U.S. production, capacity and demand forecasts. Combining these forecasts with independent projections of Canadian domestic demand (Council of Forest Industries - COFI) and foreign export demand (American Plywood Association - APA, plus COFI) provides the basis for estimating North American world demand.

The assumption sets supporting the DRI models are basically consistent with the specific assumptions of Section IV's control solution. The export component of U.S. production

is estimated assuming no adjustments of foreign tariffs and no substantial shifts in comparative advantage. Consequently, to account for potential variations in these factors, MED resolved the DRI simultaneous equation systems by adjusting the projected U.S. production-to-capacity ratios for both sheathing and sanded products. Magnitudes of the selected adjustment parameters were specified on the basis of analysis of the observed relationships of U.S. production, capacity, and exports trends, to deteriorations in B.C. coastal competitive performance in the 1969-76 period. The relevant data are presented in the following table.

U.S. Data Trends 1969-76

Period	Production (billion sq.ft.	Exports 3/8" basis)	Ratios Exports / Production (Percent)	Exports / Capacity
1969	13.611	.239	1.8	1.4
1970	14.252	.125	0.9	0.7
1971	16.534	.100	0.6	0.5
1972	18.212	.262	1.4	1.3
1973	18.189	.471	2.6	2.2
1974	15.786	.671	4.3	3.2
1975	16.099	.976	6.1	4.6
1976	18.953	.740	4.0	3.5

As detailed in Section II of the paper, the B.C. coast competitive disadvantage developed during this period. Over the eight year time span, export growth permitted a 2.1 percent

increase in the total U.S. industry's observed capacity utilization ratio, with year-to-year shifts reflecting aggregate demand factors. Since the control solution suggests that U.S. manufacturers will be operating below optimum capacity utilization for the entire forecast period, it seems reasonable to assume that continued deterioration of the B.C. coast's competitive position could allow increases in the total U.S. industry's production-to-capacity ratio of a similar magnitude by 1985. Consequently, a 3.0 percent increase in the U.S. sanded ratio and a 2.0 percent increase in the U.S. sheathing ratio appear as the appropriate parameters for the competitive performance adjustment factors employed in the Policy Option One and Policy Option Two forecasts. Both of these increases were assumed to develop in a gradual incremental fashion over the entire forecast period, with the higher increase in the sanded ratio resulting from the projected U.S. excess supply capabilities in sanded products.

As detailed in the Policy Option One forecast, a 60 percent Canadian tariff reduction is projected to allow a 2.0 percent lump sum increase in both the U.S. sanded and sheathing capacity utilization factors. Such a tariff cut would immediately widen the Canadian price differentials between douglas fir and B.C. coast products, differentials which currently favour the U.S. producers (see Table 9 of Section II). Two percent was selected as the appropriate adjustment magnitude since such an increase raises the total U.S. industry's capacity utilization ratio to the long term optimal level of 90 percent.

Even with a price advantage, the theory of profit maximization suggests that further U.S. production increases would not be precipitated.

These adjustment factors, in conjunction with the aforementioned DRI econometric models and independent COFI and APA forecasts, provide the basis for projecting total demand for Canadian produced softwood plywood by the basic mathematical identity. This, in turn, permits the estimation of future B.C. industry production and employment potentials based on the historic relationships detailed below.

Projections of B.C. production prospects are simple and straightforward. In the 1969-76 period, B.C. manufacturers accounted for 88.8 percent of total Canadian softwood plywood production. Differentiating by output type, B.C. accounted for about 90 percent of sanded plywood production and approximately 88 percent of total Canadian sheathing output. Although these observed proportions shifted on a yearly basis, no discernible trend is suggested by the historical data series. Consequently, similar proportions were projected to hold for the forecast period.

If, as is the case for the Policy Option One and Policy Option Two forecasts, B.C. coastal producers are <u>not</u> assumed to experience improvements in their recent competitive performance, employment estimates are equally straightforward. In the 1969-76 period the total B.C. industry employed an average of 4.0 people for every million square feet (3/8" basis)

of plywood produced. This relationship fluctuated on a yearly basis but, on average, remained constant.
Consequently, the relationship provides an appropriate means for estimating employment potentials based on the production forecasts of Option One and Two.

Because of assumed competitive improvements, the employment estimates of the Policy Option Three "control" and "most favourable" forecasts are substantially more complex. The control solution assumes that there will be no further worsening of proportional production cost differentials between B.C. coastal and U.S. douglas fir manufacturers. This assumption implies that B.C. producers will have to match improvements in labour productivity achieved by U.S. manufacturers.

The following table details 1969-76 data leading to the estimation of the adjustment parameters implied by such improvements.

Softwood Plywood Industry Labour
Productivity and Capacity Measures 1969-76

Period	British Columbia		United States	
	Ratio* Man Years million sq.ft. of Production	Capacity billion sq.ft.	Ratio* Man Years Million sq.ft. of Production	Capacity billion sq.ft.
1969	3.97	1.850	5.27	16.72
1970	4.14	1.920	4.74	17.83
1971	3.92	2.007	4.11	19.19
1972	4.00	2.269	3.78	20.19
1973	3.86	2.451	3.87	21.13
1974	4.26	2.410	3.97	21.15
1975	3.87	2.390	3.90	21.05
1976	3.86	2.325	3.85	21.43
Average Annual Percentage Change				
	(-0.2)	3.38	(-4.21)	3.66

* Because employment data are compiled on a different basis in U.S. and Canada, the absolute ratios are not strictly comparable. However, the differential in the percentage change of each series does reflect differences in U.S. and B.C. labour productivity performance.

Improvements in labour productivity, measured in terms of output per man year, are assumed to be related to capital investment which can be roughly proxied by observed net capacity additions. Forming the ratio of average annual percentage change in the inverse of the labour productivity measure, over the average annual change in net capacity, provides an indication of how labour requirements can be reduced as a result of new investment or capacity additions. In the 1969-76 period, B.C. manufacturers displayed a ratio of (-0.2)%/3.38% indicating a static relationship between labour requirements and production potentials. (This provides another indication of the rationale for the nature of Policy Option One and Two

employment estimates.) The comparable U.S. ratio was -4.21%/3.66%, indicating a substantial reduction in labour requirements associated with capacity additions.

If B.C. producers are to maintain their current competitive position, as assumed in the control solution, it is reasonable to expect that they will have to proportionally match U.S. labour productivity improvements during the forecast period. This implies an adjustment in the methodology for estimating B.C. employment potentials, the magnitude of which is derivable from the aforementioned historical observations. The following general relationship provides a rough approximation of the adjustment factors:

$$\frac{OUS\,\Delta\frac{E}{P}}{OUS\,\Delta\,C} \approx \frac{PBC\,\Delta\frac{E}{P}}{PBC\,\Delta\,C}$$

where:

- $OUS\,\Delta\frac{E}{P}$ = observed average annual percentage changes in the U.S. ratio of man years to production volume 1969-76
- $OUS\,\Delta\,C$ = observed average annual percentage change in U.S. capacity
- $PBC\,\Delta\frac{E}{P}$ = projected average annual percentage changes in the B.C. ratio of man years to production volume 1977-85
- $PBC\,\Delta\,C$ = projected average annual percentage change in B.C. capacity.

B.C. capacity additions are directly derivable from the production projections of the control solution, and are estimated to average 0.86 percent per annum throughout the forecast period. Consequently, the employment adjustment factor (x) is:

$$\frac{-4.21}{3.66} \simeq \frac{X}{.86} \qquad X = 0.99$$

Since, as detailed in Section IV, potential B.C. productivity improvements will most likely be delayed until 1979, the adjustment factor should be applied only to the 1979-85 period of the forecast. In total this suggests a 7.0 percent drop in B.C. observed man year-to-production-volume ratio by 1985, with the declines developing in an incremental fashion after 1978. Control solution employment estimates reflect this adjustment. Similar logic calls for a 17.5 percent drop in the B.C. man year-to-production-volume ratio by 1985, under the assumptions of the Policy Option Three "most favourable" forecast.

STATISTICAL SUPPLEMENT

Table S1. Softwood Plywood Trends in the United Kingdom Market 1970-1976. (All figures: quantity, million square feet 3/8" basis; except market share statistics, %)

Period	North American Softwood Plywood Exports			Market Shares	
	U.S. Exports	B.C. Exports	Total	U.S.	B.C.
1970	29.1	283.4	312.5	9.3	90.7
1971	22.7	219.3	242.0	9.4	90.6
1972	28.3	311.8	340.1	8.3	91.7
1973	79.7	330.5	410.2	19.4	80.6
1974	83.3	248.9	332.2	25.1	74.9
1975	139.6	211.2	350.8	39.8	60.2
1976*	120.7	140.3	261.0	46.2	53.8

* 1976 data reflects exports in the first three quarters only.

Table S2. Softwood Plywood Trends in the German Market 1970-1976. (All figures: quantity, million square feet 3/8" basis; except market share statistics, %)

Period	North American Softwood Plywood Exports			Market Shares	
	U.S. Exports	B.C. Exports	Total	U.S.	B.C.
1970	9.7	24.1	33.8	28.7	71.3
1971	7.8	37.3	45.1	17.3	82.7
1972	10.0	30.8	40.8	24.5	75.5
1973	31.1	49.3	80.4	38.7	61.3
1974	40.7	26.1	66.8	61.0	39.0
1975	29.8	33.0	62.8	47.5	52.5
1976*	34.1	17.5	51.6	66.1	33.9

* 1976 data reflects exports in the first three quarters only.

Table S3. Softwood Plywood Trends in the French Market 1970-1976. (All figures: quantity, million square feet 3/8" basis; except market share statistics, %)

Period	North American Softwood Plywood Exports			Market Shares	
	U.S. Exports	B.C. Exports	Total	U.S.	B.C.
1970	4.4	14.4	18.8	23.4	76.6
1971	1.0	19.6	20.6	4.9	95.1
1972	2.8	20.1	22.9	12.2	87.8
1973	9.5	29.0	38.5	24.7	75.3
1974	4.8	15.6	20.4	23.7	76.3
1975	5.7	7.2	12.9	44.0	56.0
1976*	9.1	12.5	21.6	42.1	57.9

* 1976 data reflects exports in the first three quarters only.

Table S4. Softwood Plywood Trends in the Dutch (Netherlands) Market 1970-1976. (All figures: quantity, million square feet 3/8" basis; except market share statistics, %)

Period	North American Softwood Plywood Exports			Market Shares	
	U.S. Exports	B.C. Exports	Total	U.S.	B.C.
1970	4.4	14.4	18.8	23.4	76.6
1971	1.0	19.6	20.6	4.9	95.1
1972	2.8	20.1	22.9	12.2	87.8
1973	9.5	29.0	38.5	31.0	69.0
1974	4.8	15.6	20.4	27.5	72.5
1975	5.7	7.2	12.9	64.5	35.5
1976*	52.7	11.4	64.1	82.2	17.8

* 1976 data reflects exports in the first three quarters only.

Table S5. Softwood Plywood Trends in the Belgium/Luxembourg Market 1970-1976. (All figures: quantity, million square feet 3/8" basis; except market share statistics, %)

	North American Softwood Plywood Exports			Market Shares	
Period	U.S. Exports	B.C. Exports	Total	U.S.	B.C.
1970	3.0	1.7	4.7	63.8	36.2
1971	4.8	5.3	10.1	47.5	52.5
1972	1.5	4.4	5.9	25.4	74.6
1973	12.9	7.8	20.7	62.1	37.9
1974	42.7	3.5	46.2	92.4	7.6
1975	59.7	3.8	63.5	94.0	6.0
1976*	47.2	1.0	48.2	98.5	1.5

* 1976 data reflects exports in the first three quarters only.

Table S6. Softwood Plywood Trends in the Italian Market 1970-1976. (All figures: quantity, million square feet 3/8" basis; except market share statistics, %)

	North American Softwood Plywood Exports			Market Shares	
Period	U.S. Exports	B.C. Exports	Total	U.S.	B.C.
1970	1.6	0.1	1.7	94.1	5.9
1971	1.2	-	1.2	100.0	0
1972	2.0	0.1	2.1	95.2	4.8
1973	4.7	1.0	5.7	82.5	17.5
1974	12.2	5.5	17.7	68.9	31.1
1975	9.3	4.1	13.4	69.4	30.6
1976*	9.4	1.4	10.8	87.0	13.0

* 1976 data reflects exports in the first three quarters only.

Table S7. Softwood Plywood Trends in the Danish (Denmark) Market 1970-1976. (All figures: quantity, million square feet 3/8" basis; except market share statistics, %)

	North American Softwood Plywood Exports			Market Shares	
Period	U.S. Exports	B.C. Exports	Total	U.S.	B.C.
1970	38.0	20.6	58.6	64.8	35.2
1971	32.2	30.9	63.1	51.0	49.0
1972	108.6	24.1	132.7	81.8	18.2
1973	179.9	9.5	189.4	95.0	5.0
1974	81.8	-	81.8	100.0	0
1975	163.3	-	163.3	100.0	0
1976*	111.1	-	111.1	100.0	0

* 1976 data reflects exports in the first three quarters only.

Table S8. Softwood Plywood Trends in the Japanese Market 1970-1976. (All figures: quantity, million square feet 3/8" basis; except market share statistics, %)

	North American Softwood Plywood Exports			Market Shares	
Period	U.S. Exports	B.C. Exports	Total	U.S.	B.C.
1970	1.5	10.1	11.6	12.9	87.1
1971	1.8	2.2	4.0	45.0	55.0
1972	2.7	1.2	3.9	69.2	30.8
1973	12.1	2.8	14.9	81.2	18.8
1974	3.9	1.6	5.5	70.9	29.1
1975	3.6	1.0	4.6	78.3	21.7
1976*	1.6	1.4	3.0	53.3	46.7

* 1976 data reflects exports in the first three quarters only.